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ABSTRACT

A product of the International Information Center for Terminology (Infoterm), this manual is designed to serve as a reference tool for practitioners active in terminology work and documentation. The manual explores the basic ideas of the Vienna School of Terminology and explains developments in the area of applied computer aided terminography within the last few years. The manual consists of seven sections: (1) an overview of world-wide terminological activities and the objectives of TermNet (the International Network of Terminology); (2) the General Theory of Terminology as related to other academic disciplines; (3) terminological principles; (4) methods of terminology; (5) a general idea of how to carry out terminology projects; (6) a concise presentation of the fundamentals of terminology documentation for the purpose of TermNet; and (7) a multi-language bibliography of the basic literature. Reference lists are included in several sections. (THC)

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Terminology Manual

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General Information Programme
and UNISIST

United Nations Educational,
Scientific and Cultural
Organization

International
Information Centre
for Terminology
(Infoterm)

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Paris, 1984

TERMINOLOGY MANUAL

by

Helmut FELBER

General Information Programme
and UNISIST

United Nations Educational,
Scientific and Cultural
Organization

International Information
Centre for Terminology
(Infoterm)

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PREFACE

Recognizing the growing importance of terminology for the development of science and the humanities, for translation, and particularly for information and documentation activities, Unesco has been supporting terminological activities for the last twenty years. It was, however, only at the beginning of the seventies that the idea of an international co-ordinating body in the field of terminology, which had been discussed for some time within Unesco, came into being. It was in the framework of the UNISIST programme of Unesco, and on the basis of a contract between this Organization and the Austrian Standards Institute, that the International Information Centre for Terminology, Infoterm, was established in 1971, in Vienna.

Since its foundation, Infoterm has employed strong efforts to improve international co-operation in terminology. The discussion of this topic at the First Infoterm Symposium (Vienna, 1975) gave rise to the conception of TermNet, a network for terminology. TermNet programmes aim at developing the scientific basis for terminology (general theory and principles of terminology) and at establishing closer co-operation in preparing terminologies and their recording in machine-readable form, as well as in collecting, recording, processing and disseminating terminological data and information.

The importance of these efforts has been recognized worldwide, as reflected in the resolution adopted at the twenty-second session (1983) of Unesco's General Conference in favour of the activities carried out by Infoterm and, in particular, with regard to the realization of the TermNet programmes.

The establishment of the TermNet programmes was necessitated by the crucial situation in specialized communication, documentation and information, and its expected further complexity in the future. The rapid growth of concepts in all fields of human activity gives rise to serious communication problems. All these concepts have to be represented by terms in individual languages which have a restricted word and word element stock for term formation. Owing to the strong disproportion between concepts and word stock - the word stems and affixes in individual languages amount to some thousands, the concepts in individual subject fields alone reach millions - an unambiguous communication will become more and more difficult. This would have severe implications for man-machine and machine-machine communication and also for communication between individuals. Furthermore, the change over from information bases to knowledge bases requires a new approach in information, making use of systematic terminologies. Certain tools are necessary for the implementation of the TermNet programmes. They are in preparation by Infoterm which collects and analyzes all standards and guidelines of terminology work for this purpose.

In recent years, Infoterm has intensified its efforts within the framework of TermNet to assist organizations and individuals in the application of terminological principles and methods to their terminology work. The teaching material used and other pertinent publications of Infoterm formed the basis for the preparation of a manual which can be used as a tool within TermNet. It is first of all intended for subject specialists, teachers of LSP and terminology, as well as by others.

The present manual is one of Infoterm's information products and is published in co-operation with Unesco's Division of the General Information Programme, in order to ensure its wide dissemination. Any comments on this work, or requests for information on Infoterm/TermNet programmes and achievements, should be sent directly to the following address:

International Information Centre for Terminology (Infoterm)
Österreichisches Normungsinstitut
Heinestr. 38
Postfach 130
A-1021 WIEN
Austria

It is hoped that this manual, which places special emphasis on the principles and methods of terminology, will assist specialized organizations and subject specialists in their terminology work and, at the same time, will promote the implementation of TermNet.

ACKNOWLEDGEMENTS

This book could not have been written without using the works of E. Wüster as a basis and without the support of my collaborators at Infoterm, who in the last year took over a certain working load of my executive duties, so that I was able to concentrate on the finishing of the book.

I am especially indepted to Mr. W. Nedobity for revising or translating some passages of the text and for other editorial support. I thank Ms. Krommer-Benz for an extract from the "World Guide to Terminological Activities". Thank is also due to Ms. M. Schernthaner, Ms. G. Krauter and Ms. E. Wagner for typing the rather complicated text.

Last but not least I am grateful to Unesco for the support granted and for publishing this work.

> Lexicographus non tantum sit philologus
> sed etiam philosophus immo et medicus,
> juris consultus, et theologus, si illarum
> facultatum lexica debeat et vellit coscribere.
>
> J. H. Alstedt (1610)

INTRODUCTION

During recent decades terminology science, terminology work and terminology documentation have made great progress. They are at present in rapid development. International and national symposia, conferences, meetings are devoted to these fields. Seminars and courses dealing with these fields are going to be held at a growing rate at different institutions of higher learning and departments of universities all over the world.

Since its foundation Infoterm has directed much of its efforts towards the dissemination of information in these fields in form of lectures at institutions of higher learning and universities, of in-house training and of documents. The lectures which have been published as a text book or in form of articles of journals form the basis of the in-house-training offered by Infoterm.

For the realization of the International Network of Terminology (TermNet) three programmes for each of these fields have been developed. The training of subject specialists plays also an important role within TermNet. It should enable them to elaborate systematic terminologies.

Since subject specialists who elaborate terminologies in commissions or who are trained in terminology as well as practitioners who are active in terminology work and documentation require urgently a work of reference, I gathered the subject matter in a single manual, which supports the development of TermNet.

The expertise which I acquired over the last decades as a member of terminology committees, as collaborator of terminology projects, as a lecturer of the theory of terminology at the University of Vienna and as director of the

International Information Centre for Terminology (Infoterm) guided me in the selection of the subject matter for this book. I wanted to include only those aspects of terminology which are useful for practical work. This book contains the basic ideas of the Vienna School of Terminology which were laid down by Eugen Wüster on grounds of his lifelong experience in this field. Furthermore important details of applied computer aided terminography were included which have been developed within the last few years.

The content is divided into 7 parts, which can be used separately. Part 1 provides an overview of world-wide terminological activities and the objectives of TermNet. Part 2 is very short and shows that the General Theory of Terminology is related to other fields. Profound investigations are still to be carried out. Part 3 "The terminological principles" and part 4 "The methods of terminography" form the core of this manual. Part 5 is very short and should give only a general idea of carrying out terminology projects. This part shall be extended on the grounds of the results gained in TermNet. Part 6 is a concise presentation of the fundamentals of terminology documentation for the purpose of TermNet. Part 7 is a bibliography of the fundamental literature.

This manual is not a scientific treatise. It is practice-oriented and shows the application of principles and methods in terminology work. It should supplement national and international standards or guidelines in order to facilitate their application. Considerable progress in terminology work at national and international level is only to be expected, if those who are responsible for the terminologies - i. e. the subject specialists and professionals - possess the know-how of terminology work.

Therefore this book is first of all intended for subject specialists and terminologists. It will, however, also be helpful for standardizers, researchers, information specialists, classification experts and teachers of terminology and special languages.

Prof. Helmut Felber
Director of Infoterm

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PART 1

TERMINOLOGY WORK AND SCIENCE IN GENERAL

1 TERMINOLOGY WORK AND SCIENCE IN GENERAL

1.01 WHAT IS TERMINOLOGY?

The term "terminology" is assigned to three concepts:

terminology^1: Terminology science
Inter- and transdisciplinary field of knowledge dealing with concepts and their representations (terms, symbols, etc.)
terminology^2: Aggregate of terms, which represent the system of concepts of an individual subject field
terminology^3: Publication in which the system of concepts of a subject field is represented by terms

A term is any conventional symbol representing a concept defined in a subject field.
Terminology science is divided into the Prague, Soviet and Vienna schools of terminology and specific scientific investigations of terminology in many countries.

1.02 WHY ARE TERMINOLOGIES SO IMPORTANT?

Terminologies are the fundamentals for:

- the ordering of knowledge on grounds of the relationships of concepts (general theory of science, conceptual classification for each scientific discipline)
- the transfer of knowledge, skills and technology (education, training, reading of scientific and technical texts, etc.)
- the formulation and dissemination of scientific and technical information (scientific writing and editing, publishing)
- the translation of scientific and technical texts into other languages
- the abstracting and condensing of subject information
- the storage and retrieval of scientific and technical information (indexing languages, thesauri, classification schemes).

Any human activity and any field of knowledge is endowed with a large number of concepts which are interrelated with each other in the same field and with the concepts of other fields, and with an aggregate of terms assigned to these concepts. Progress in these fields gives rise to new concepts to which terms have to be assigned. These concepts have to be brought in line with the existing concept system. This activity of finding or forming terms for concepts and of defining concepts is at the same time scientific and terminological.

The development of terminology as a science, the application of terminological principles and the international coordination of terminology work will be able to help avoid a possible breakdown of subject communication. An extremely large number of new concepts, which arise in all fields of human activity, have to be expressed by existing terms or by terms to be formed by combination of word elements (roots and affixes) in each of the languages. The number of word elements amounts to a few thousands, that of concepts to millions. This unfavourable relation could give rise to a situation in which man-man, man-machine, and machine-machine communication will gradually come to a standstill.

A systematic approach and the application of terminological principles as well as computer-aided terminography are an absolute necessity for coping with this situation.

Scientific knowledge and technological skills are scattered on different places of the world. The transfer of knowledge and skills is only possible if the terminologies in the respective languages are developed. For this reason efforts are being made in countries such as the People's Republic of China, Japan, the Arabian, African and South-American countries to develop terminologies in those fields in which they intend to follow the progress of other countries.

The translators and interpreters are mostly the first who feel the lack of terminologies when they have to reformulate the information in another language.

Any information activity depends on the availability of reliable terminologies. They are needed when the information is formulated and when it is condensed or retrieved.

The development of conceptual classifications (see 3.52) is both a scientific and terminological activity. Conceptual classifications have to be dynamic and to follow quickly the development of the individual disciplines.

The classification schemes available for library and information work are statical and follow new developments only very slowly. They should be based however, on conceptual classifications.
The thesaurus has become an indispensible tool for information retrieval. It has the advantage that it is fairly flexible and that it can incorporate new scientific developments more quickly. The construction of a thesaurus includes systematic terminology work and the clarification of the relationships between concepts.

1.03 WHAT IS TO BE UNDERSTOOD BY TERMINOLOGY WORK?

1.031 General View (Wüster's model)

The nature of terminology work was for the first time described in detail by Wüster in his paper "Die vier Dimensionen der Terminologiearbeit /The four dimensions of terminology work/" /1/ which is given below in condensed form. For this purpose he chose a classification the characteristics of which can be combined (faceted classification).

types of fields		stages of terminology work	
a subject fields	b languages	c Approach to languages	d View on languages
terminology work for one individual subject field a1 physics a2 chemistry a3 ... a300 a0 terminology work which is transdisciplinary (including terminology work which aims at a comparison and unification of terminologies of different subject fields)	terminology work for one individual language b1 English b2 French b3 ... b60 b0 terminology work which is trans- and extralinguistic (including terminology work comparing and unifying languages)	c1 co-ordination c11 documentation (once) c12 information (many repetitions) c2 terminology use (many repetions c12 formulation c211 free formulation c212 translating and interpreting c22 teaching and learning c3 development of systems of concepts and terms (once) c31 research (finding out the systems and laws) c32 elaboration (of the the systems and laws) c321 individual c322 by agreement (standardization) c323 by prescription (authority) c33 representation (of the systems and laws, i.e. vocabularies and principles respectively	d1 individual case study d2 development of principles

Figure 1 The four dimensions of terminology work (table of characteristics)

These characteristics are:

1. the subject fields (dimension a)
2. the languages (dimension b)
3. the approach (dimension c)
4. the degree of abstraction (dimension d)

The whole classification can be depicted by the following box structure:

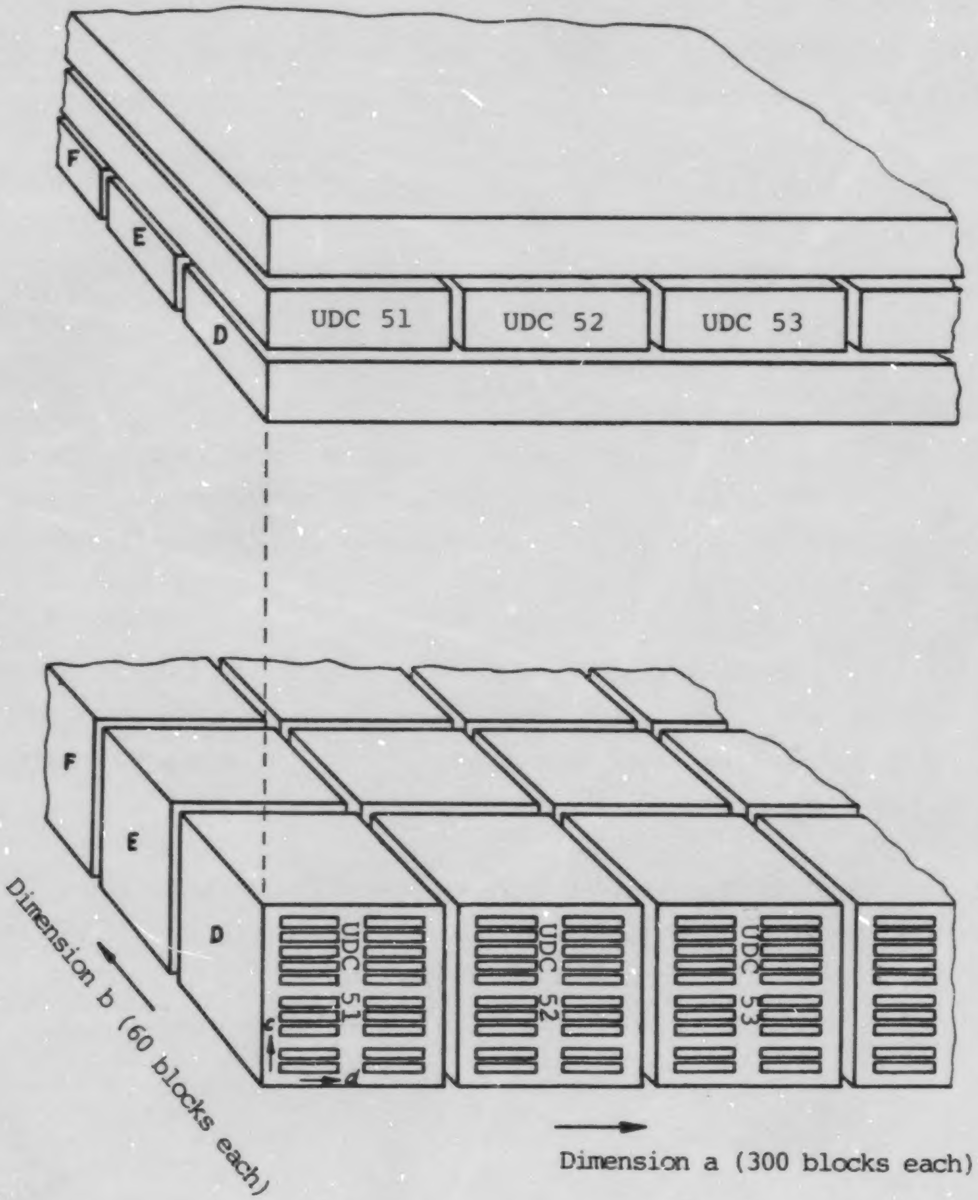
F
E
D
UDC 51
UDC 52
UDC 53
F
E
D
UDC 51
UDC 52
UDC 53
c
d
Dimension b (60 blocks each)
Dimension a (300 blocks each)

Figure 2

First of all we look just at the lower part of figure 2:
two dimensions (a and b) represent cubes which both together cover a rectangular area completely. Dimension a consists of a row of 300 juxtaposed cubes; dimension b lines up 60 cubes one behind the other. Each cube contains a number of drawers just like a chest of drawers. Dimension c contains 10 drawers on top of each other; dimension d contains two next to each other.
Dimension c should virtually run horizontally, and dimension d vertically, which would comply with the rules of analytical geometry. The two dimensions have been interchanged so that the graphical display of the two set of drawers takes up less room.

1.031.1 The two types of fields (dimensions a and b)

We will have now a closer look at the table of characteristics (see figure 1).

The fields of concepts for each subject and language

The first dimension of the field (dimension a) is the spectrum of subject fields. First of all we have to clarify the fact of how minutely we should subdivide the spectrum. What is to be understood by the "subject field" of a terminologist?

The question has often been discussed by now. A subject field cannot be so general such as "technology" or "natural sciences". In any case one should only think of the field of study of a university student or - even better - of the competence of a single chair.

Experts have not reached an agreement on how many subject fields exist. Let's assume something like 300. In our box structure there are 300 blocks in each row. According to investigations by I. Dahlberg there are about 5600 concepts in use which represent scientific disciplines /2/.

The languages (dimension b)

The second dimension of the field (dimension b) is formed by the languages. It is to be noted that the systems of concepts which are represented by any two languages are by no means identical. This has been emphasized already by Ferdinand de Saussure /3/ around 1910. De Saussure's teachings are of special importance to terminologists. His main attention was directed towards common language. The language related difference of the systems of concepts is also valid for terminology where it is less stringent and less unalterable.

Terminologists have a great advantage over users of common language: they do not have to bother with 2000 different languages but only with 60 since terminologies are only available in about 60 languages at the moment.

This means that there are only 60 blocks lined up in the box structure. What is the number 60 based on? In the Unesco bibliography of multilingual vocabularies by J.E. Holmstrom /4/ only 59 languages occur. The two dimensions together result in 300 x 60 = 18.000 possible monolingual subject terminologies. In reality, there exists only a fraction of this combination. Sixty languages provide to each subject field 60 x 59 : 2 = 3540 : 2 = 1770 language pairs and consequently 3540 bilingual vocabularies.

With repsect to 300 subject fields one can anticipate 300 x 3540 = 1 062 000 bilingual subject vocabularies in alphabetical order which can be rounded up to one million. Bilingual translators and interpreters have therefore half a million possibilities of specialization.

The number of required subject vocabularies can be cut down to 18,000 if the vocabularies are monolingual and their contents are arranged in systematic order (i.e. according to the relationships of concepts). In such a case one will have to follow certain terminographic principles so that the systematic order of concepts in the various languages are comparable.

1.031.2 The transdisciplinary and translinguistic terminology work

There are, however, branches of terminology work which by nature surmount completely or partially the variety of the systems of concepts. This is called the transdisciplinary and trans- or extralinguistic terminology work. In particular, there are two branches of it: the terminology work directed to the unification of concepts and terms and the elaboration of terminological principles and terminographic methods. Both of these branches have to be preceded by comparative terminology work.

In our box structure this transdisciplinary and translinguistic terminology work is represented as a top cover as can be seen in the upper part of figure 2.

1.031.3 The stages of terminology work (dimensions c and d)

Dimensions a and b of terminology work are determined by the type of the fields of concepts to be treated. They exist independently of terminology work. They are - so to say - the raw material of terminology work. We have arrived now at dimensions c and d. They classify the working methods.

The approach to language (dimension c)

Dimension c is the approach to language of the people concerned with terminology. It is the attitude of persons towards terminology.

There are three main levels of approach to language:

(1) At the first level (c1) people are just concerned with the handling of terminological documents. It is the detached point of view of terminological documentalists. They co-ordinate the terminology work of other people.

(2) At the second level (c 2) people use terminologies, e.g. as technical writers or translators.

(3) At the third level (c 3) they penetrate terminology entirely. They investigate and construct systems of concepts and terms. These are the only true terminologists. Their work is referred to as "systemic work" in the following.

The hierarchy of levels can also be reversed: first of all there has to exist a terminology, i.e. to be recorded, before it can be used or its usage determined. The ontological sequence is - as said before - reverse to the sequence of approach.

The systemic work (level c 3)

With systemic work in terminology we differentiate between three stages:

stage 1: the investigation of the terminological system
stage 2: the construction of the system
stage 3: the presentation of the system

Stage 1

The investigation describes the present usage of terminology. Possibilities for improvement can already be determined at this stage.

Stage 2

The amendments themselves are a kind of formation. The deliberate or unaware formation of a system is already possible for a certain number of people - at least for their own usage.

As a rule the deliberate elaboration of a terminology appears in form of an agreement, a recommendation or an official (i.e. legal) document. A prescription based on agreement is an optional standard. An official prescriptive standard is a mandatory standard. In case that such a standard is published, it can happen that it is in competition with a descriptive standard for many years. Usually new terms enter the scientific languages first and only later on are used in workshops and by laymen.

Finally the prescriptive standard is converted into a descriptive and replaces the former descriptive standard. If a prescriptive standard is not accepted at all levels, linguistic splitting will occur. It goes without saying that each act of standardization (stage 2) has to be prepared by thorough research (stage 1). Very often research is even triggered by the standardization process.

Stage 3

The third stage of systemic work is the presentation of the system. The applied terminology work leads to vocabularies, the basic terminology work leads to standards and guidelines for the handling of concepts and terms.

Basic principles have also to be elaborated for the compilation of subject vocabularies. A principle of overall importance is, for instance, that the fundamental vocabularies of a subject field have to reflect the system of concepts as clearly as possible. Such basic works can therefore only be arranged systematically and not alphabetically. A certain number of lexicographical symbols has to be applied in the production of systematic vocabularies.

The systems of concepts form the basis both of common language and terminologies. While the systems of concepts in the common language are more or less arbitrary and - apart from this - prescientific, the terminological systems of concepts are deliberate and have to reflect the latest findings of the discipline.

Somewhere in the middle between the scientific concept classifications and the systems of concepts of common language there is a third category. These are subject classifications of the documentalists (see 3.53). Their systematic vocabularies are called "thesauri". Classifications are indispensible particularly for the application of computer aids in documentation.

It is necessary and urgent that terminologists and documentalists get together in order to construct common classifications and to advance their common foundations - the theory of classification. Systemic work has to stay the domain of terminologists, e.i. subject specialists with additional training in terminology.

The usage of terminologies (level c 2)

The second level of approach is - as mentioned above - the usage of terminology.

Formulation. - In the foreground of active usage of terminology there is the formulation. The people using terminology in this way are the specialists of a certain subject field, who make oral or written contributions to their subject. For this type of original formulating there is no fundamental terminological training necessary, only a single field training. This is, however, already part of the subject training.

Terminology training. - The aspect of terminology usage includes also the training of terminology. This aspect does not create systems of concepts and terms but only conveys them or conveys the terminological principles and terminographic methods.

The co-ordination of terminology work (level c 1)

In view of the growing number of subject vocabularies and terminological projects, it is the law of economy and harmony to inform all parties interested - be it users or authors of vocabularies - about the existing terminological projects and publications. This task can be subdivided into two: the documentation and information. Documentation is the recording of data, e.g. as secondary literature (bibliographies, etc.) while information is the transfer of data to people interested.

The prerequisites of any information and documentation work in terminology are:

- knowledge of the systems of concepts pertaining to the respective subject fields
- training in terminological principles and methods of terminography
- training in documentation and information.

The use of computers

Computers are being applied to terminology work at an increasing rate. The application of computers is not an additional level of approach but simply a replacement of human activities by machines.

Computers can be applied to all three levels of approach of terminology work:

(1) At the third level, i.e. in systemic work the storage of terminographic data is of utmost relevance, especially for the production of vocabularies. (see 4.041)

(2) At the second level, i.e. with the usage of terminology, the computers can be used as aids for translation. They store equivalent terms in different languages which can be retrieved instantly. They make the "looking up" of terms much simpler.

(3) Also at the first level of approach concerning the co-ordination of terminology work the storage and retrieval of bibliographical data is of high relevance: the storage can be seen as an act of documentation, the retrieval as an act of information.

The view of language (dimension d)

The two levels of abstraction (d1 and d2)

We have arrived now at dimension d, the view of language. One has to understand by this the degree of abstraction of terminology work.

Dimension d divides terminology work into two levels:

(1) At the first level only single cases are viewed. They are called "case-studies".

(2) The second level is the basic study.

These two levels are interactive: Before terminological principles can be determined, single cases have to be investigated (inductive method). As soon as principles are laid down, however, then a certain way of handling each single case is prescribed (deductive method).

It is selfevident that the difference between case study and basic study is of special relevance to systemic work (level of approach 3). The activities of translators and interpreters, however, concentrate on single cases. For the clarification of a single concept it is necessary to compare it to related concepts, i.e. the determination of its position in the field of concepts (juxtaposition). For this reason the study with single cases has to be extended to work in single fields.

1.032 Specific activities of terminology work

In general, terminology work /5/ comprises the following activities:

(1) collecting and recording of terms assigned to concepts of a specific subject field,

(2) finding, creating or standardizing of a system of concepts for a subject field,

(3) finding or standardizing of an assignment concept-term, i.e. assigning of a term to a concept or vice versa

(4) describing concepts by means of explanations or definitions, or the standardization of the definitions

(5) the recording of terminographical data (terminological and associated data). Terminological data are: terms, definitions, explanations, contexts, conceptual relationships, equivalents in other languages, etc. Associated data are: the sources concerning the individual data, data of recording etc.

(6) in addition in multilingual terminology work the comparison of concepts of different languages, the determination of the degree of equivalency of concepts and the finding of equivalent terms.

Items (2) to (4) and (6) concern terminology work proper, while items (1) and (5) concern the terminography. A general view of terminology work and its interrelationship with the theory of terminology and terminology documentation is given in Annex 1.

1.04 RECORDING OF TERMINOLOGY USAGE (DESCRIPTIVE TERMINOLOGY)

For the assignment of terms to concepts linguistic norms are applicable. Two norms are distinguished: one norm is expressed by the actual usage of terminology, the other norm by a terminology, which is deliberately created by a competent body of experts and recommended by an authoritative body (for instance a standards organization).

Progress in all fields of human activities has caused and still causes researchers, scholars, professionals and others to create new terms, in abundance, or take over existing terms or words as expressions for individual concepts newly developed. This is done without considering that the concepts of a specific subject field form a system of concepts. This includes also the creation of new concepts which are absent in certain languages and for which terms have to be coined. These terms are accepted by experts on grounds of technical literature and are being used in communication of the subject field concerned. If they are not accepted or only accepted by a part of the technical community, synonyms (see 3.85) arise, which should be avoided. The rapid progress in some fields gives rise to the continuous change of concepts (meanings) while the terms remain mostly the same. The consequence of this change is quite often quasisynonymy (see 3.851).

Descriptive terminology is the recording of terminological data (see 4.051) of isolated concepts in one or simultaneously in several languages with the necessary sources as far as possible. The terminological data of the individual concepts are assigned to a subclass of a subject field classification. This type of terminology work which is done by most of the existing terminology agencies and terminological data banks is to be called in the strict sense of the word terminographical documentation. The results are dictionaries. If they are computerized, they are terminological data banks of the dictionary type (see 6.211.1). Sophisticated methods of descriptive terminology are characterized by terminology research which requires specialized knowledge of the subject field concerned, i.e. the activity of the subject specialists or at least their co-operation. The outcome of this activity is the structure of a concept system following distinct types of characteristics (see 3.52). The terms are arranged in a classified order or at least in broad concept groups reflecting a system of concepts. The results are vocabularies. If they are computerized they are terminological data banks of the vocabulary type (see 6.211.2).

The present usage of terms is, however, often registered without any co-ordination and without utilizing terminological sources. Thus sometimes two or more vocabularies dealing with the same subject field and the same language combination are published, whereas there is a deficiency in other subject fields and language combinations. A large part of this effort is devoted to the production of translation aids (translation dictionaries). Many dictionaries are unreliable and do not meet scientific (high quality) requirements, because they are not prepared according to scientific methods (terminological principles). Inexact dictionaries are a great danger for the user and above all for terminological data banks which have incorporated the content of such dictionaries (see 6.21).

1.05 STANDARDIZATION OF TERMINOLOGY (PRESCRIPTIVE TERMINOLOGY)

Unambiguous communication in the strict sense of the word would require that for one concept - the element of thinking - only one term should exist and vice versa. For this reason there should be neither the same term for several concepts (homonyms or polysemes) nor several terms for a concept (synonyms) (see 3.8). The requirement that the same term should not represent several concepts can in practice, however, not be met, since the number of concepts existing in one subject field exceeds approximately a thousand times the number of word stems in the individual languages. The requirement, that a concept should not be represented by several terms can be met by standardization. Standardization of terminology has the purpose to unify concepts and systems of concepts to define concepts, to reduce homonymy (see 3.841), to eliminate synonymy (see 3.85), and to create if necessary new terms in line with terminological principles (see 3.7). The terminology standards are disseminated and their application is recommended by a certain standards organization.

Right from the beginning of standardization it has been apparent that standardization of terminology had to precede standardization of objects /6/. In common language the actual usage of language is the standard. Therefore until very recently linguistics concerned themselves only with the free and undirected development of common language. Linguistics could ignore standardization since the common language vocabulary is not very comprehensive (about 600,000 words in English) compared with technical language. Shakespeare in his work used about 23,000 different words.

In special languages, however, owing to the rapid progress in science and technology leading to the creation of an abundance of concepts and terms (millions concepts for an individual subject field), free development of terminology would give rise to intolerable confusion. This was the reason why terminologists in the last century started to establish commissions for terminology in order to unify and standardize concepts and terms /7/. In science the standardization of terminology started already in the 19th century. In technology, standardization of terminology started at the beginning of this century.

In order to harmonize terminology work unified guidelines became necessary. In this way two types of standardization of terminology exist:

(1) standardization of terminological principles and of methods for terminography

(2) standardization of vocabularies (terminology standards)

1.051 Terminological principles and methods for terminography

During the last decade an ever increasing number of institutions and organizations have been involved in the creation or preparation of terminologies as well as in collecting, recording, processing, storing, disseminating and exchanging of terminological data on national or international level. It is to be expected that in future this number will increase enormously.

The urgent need for national and international standards for terminological principles and for methods of terminography was described by the late Prof. Wüster as early as 1931 in his comprehensive study "Internationale Sprachnormung in der Technik /International standardization of the language in engineering/" /8/ which was the impetus for setting up Committee 37 "Terminology" within the International Federation of National Standardizing Associations (ISA) in 1936.

After some preparatory work had been accomplished, World War II interrupted this activity which could not be resumed until 1951 by the Technical Committee 37 "Terminology (principles and co-ordination)" of the International Organization for Standardization (ISO). The Secretariat of ISO/TC 37 is held by the Austrian Standards Institute (ON) in Vienna.

At present ISO/TC 37 comprises 51 countries (18 Participating Members and 33 Observing Members) and 31 international organizations as Liaisons.

For a new field such as standardization of terminological principles and methods basic research and consideration of practice is necessary, since standardization can be more harmful than useful if profound research has not preceded it. This was the reason why the preparation of the first set of documents (6 ISO Recommendations and one ISO Standard) took 35 years (including the years of interruption during the Second World War). Standards organizations, particularly the Secretariat of ISO/TC 37, have been compelled as yet to do comprehensive research in the field of terminological principles for a long period of time. The basic research should now be undertaken within TermNet Programme 1 "Developing the scientific basis for terminology" which is being implemented by TermNet partners using the International Information Centre of Terminology (Infoterm) as a focal point (see 1.131).

A first step in this direction was the First International Symposium on Theoretical and Methodological Problems in Terminology which was held in Moscow from 27 to 30 November 1979 /9/. It was organized by VNIIKI/GOSSTANDART, four Institutes of the Academy of Sciences of the USSR, Infoterm and the International Association for Applied Linguistics (AILA). It is intended to continue organizing such symposia.

A very important issue in the standardization of terminology is the application of international standards. This requires on the one hand a wide dissemination of information on the existence of such standards and guidelines see Annex 2 (International Bibliography BT 6) and on the other hand training courses for the application of such standards.

The application of standards is closely linked with the need for periodical revision of these standards, i.e. with the inclusion of the results of new advances and of practical experience gained by applying these standards and with the creation of new standards if necessary. The quick revision of standards and creation of new ones at the appropriate time is only possible, if those institutions which are interested in these standards are willing to co-operate and to share a certain work load. If this matter is not given due regard, obsolete standards will exist and new standards will appear too late.

A general survey of the past and present activities is given below.

1.051.1 Phases of the preparation of international standards

The preparation of international standards for terminology has already passed through two phases and is now in the third phase.

The first phase (1936 - 1939). It started with the setting up of ISA 37 "Terminology" in 1936. The following meetings were held: prelimary meeting in Vienna 1936; first meeting in Budapest 1936; second meeting in Paris 1937; third meeting in Berlin 1938; fourth meeting in Helsinki 1939.

Preparatory work has been done for:
(1) naming rules
(2) international unification of terms
(3) layout of monolingual vocabularies
(4) layout of multilingual vocabularies
(5) symbols to be used in vocabularies
(6) guidelines for preparing classified vocabularies

As early as 1939 drafts for (1), (4) to (6) existed.
These drafts were based to a large extent on

- Wüster's comprehensive study "Internationale Sprachnormung in der Technik" /10/ and on the experience gained so far through the preparation of the two international vocabularies mentioned below:
- International Electrotechnical Vocabulary (IEV) which is elaborated by the International Electrotechnical Commission (IEC) /11/. The first edition in 6 languages was published in 1938. The preparation took 30 years. It incorporatead over 2000 concepts.
- Illustrierte Technische Wörterbücher (ITW) prepared in six languages under the direction of Schlomann /12/. It consisted of 17 volumes, comprising all fields of technology. These volumes came out between 1906 and 1928.

These drafts were discussed at four ISA meetings (1936, 1937, 1938 and 1939) and modified according to the resolutions taken at these meetings. The first phase came to a standstill in 1939 because of the Second World War.

The second phase (1952 - 1973). - Soon after setting up ISO/TC 37 "Terminology (principles and co-ordination)" in 1952 the unfinished work was continued. The existing ISA-Drafts were the basis for the elaboration of ISO Draft Proposals.

An intensive research activity in the terminological field was started in 1952 by the ISO/TC 37-Secretariat. It was accompanied by the preparation of "The Machine Tool. An interlingual dictionary of basic concepts" /13/. This was a pilot project which was undertaken under the auspices of the United Nations Economic Commission for Europe and under the direction of E. Wüster. This vocabulary was published in 1968. Thus the terminological principles and methods of terminography of the ISO Drafts were either derived from practical experience or tested in this pilot project.

Initiating the second phase in 1952, E. Wüster gave a report on the state-of-the-art in the article "The Coming Concentration of International Terminology Work" /14/.

The ISO Drafts developed in this way were discussed in four ISO meetings

(1953, 1954, 1955, 1960) and two Working Group meetings (1956, 1957). They were modified in accordance with the resolutions taken at these meetings. The Draft Recommendations were then submitted to ISO Members for comment and vote. Afterwards six ISO Recommendations and one ISO Standard appeared between 1967 and 1973, which are listed below in classes:

Class 1 Vocabulary

ISO/R 1087-1969 "Vocabulary of terminology"

Class 2 Guidelines

ISO/R 919-1969 "Guidelines for the preparation of classified vocabularies"

Class 3 Naming principles

ISO/R 704-1968 "Naming principles"
ISO/R 860-1968 "International unification of concepts and terms"

Class 4 Layout

ISO/R 1149-1969 "Layout of multilingual classified vocabularies"
ISO/R 639-1967 "Symbols for languages, countries and authorities"
ISO 1951-1973 "Lexicographical symbols, particuarly for use in classified defining vocabularies"

Annex 2 gives an international bibliography of all international and national standards as well as of non-standardized guidelines.

The third phase (from 1974 onwards). At the fifth meeting of ISO/TC 37 held in Vienna in 1974 it was decided to revise all six ISO Recommendations and the ISO Standard. At this meeting proposals for a revision of some documents were presented by ISO/TC 37 Secretariat.
The progress made in the last decade in the terminological field calls for a careful planning of the content of the future standards. The rapid progress is due to:

- basic terminological research in different countries of the world (general theory of terminology)

- application of computerized methods for processing terminological data (e.g. production of vocabularies by computer)
- establishment of big terminology agencies and terminological data banks

At the 6th meeting of TC 37 held in Vienna on 8 and 9 April 1981 the scope was changed, reading now:

"Standardization of methods for creating, compiling and co-ordinating terminologies".

This was done in order to include the preparation of guidelines for non-standardized terminologies.

The success of the future preparation of ISO Standards - taking into account the needs of all user groups - will depend to a high degree on the active participation of

- subject specialists preparing terminologies (terminologists)
- linguists
- professional terminologists working in terminology agencies, language departments, terminological data banks and the like
- and other specialists such as information specialists

In close co-operation with ISO/TC 37 and in line with the ISO Recommendations the Document "General directives relating to the preparation of the International Electrotechnical Vocabulary" /15/ was prepared in 1972 by Technical Committee 1 of the International Electrotechnical Commission (IEC). IEC/TC 1 is also responsible for the co-ordination of terminology work within IEC. France is in charge of the Secretariat of IEC/TC 1.

At present ISO/TC 37 comprises the following bodies:

ISO/TC 37	"Terminology (principles and co-ordination)" (Secretariat Austria)
ISO/TC 37/SC1	"Principles of terminology" (Secretariat USSR)
ISO/TC 37/SC2	"Layout of vocabularies" (Secretariat Canada)
ISO/TC 37/WG4	"Computational aids in terminology and lexicography" (Secretariat FRG)
ISO/TC 37/WG5	"Vocabulary of terminolgy"

SC=Subcommittee; WG=Working Group

The following meetings of TC 37 were held as from 1975:

ISO/TC 37	Terminology (principles and co-ordination): Vienna 1981 (6th meeting)
ISO/TC 37/SC1	Principles of terminology: Moscow 1980, 1981, 1982; before transformation in SC 1, WG 1 meetings: Moscow 1976, 1978
ISO/TC 37/SC2	Layout of Vocabularies Offenbach 1983 before transformation in SC2, WG 3 meetings: Paris 1975; Quebec 1978; Vienna 1981
ISO/TC 37/WG4	Computational aids in terminology and lexicography: Offenbach 1975, 1977; Amsterdam 1979; Vienna 1981, 1983
ISC/TC 37/WG5	Vocabulary of terminology: Vienna 1981, 1982; Frankfurt 1983 (spring and autumn).

1.052 Preparation of terminology standards

Preparation of terminology standards consists of three stages:

(1) investigation into the terminology of a given subject, i.e. investigation into the present usage of this terminology;

(2) shaping of the terminological system (systems of concepts and their terms), i.e. deliberate formation of the terminology of this subject, as it should be;

(3) adoption of the terminology by the competent technical committee of the respective standards organization.

After having been adopted the terminology standards are published and the information on their existence disseminated by the respective standards organization.

Terminology standards are prepared at national and international level. Responsible for this work at international level is the International Organization for Standardization (ISO) and at national level the national standards institutions, which are members of the ISO; in the electrotechnical field the IEC at international level and its national members at national level. But in general, any national or international body competent in a specialized field can standardize the terminology of the field of its activity.

While the study of the usage of terminology results in an inventory of existing terminologies (in finding out the "is-standard") standardization of terminology aims at introduction of recommended terminologies (a "should-be-standard"). Therefore, standardization of terminology is deliberate formation of terminologies and the recommendation of their use.

1.052.1 ISO

The International Organization for Standardization (ISO) comprising at present 72 national members and 17 correspondent members and nearly all important international professional and technical organizations as liaisons is heavily engaged in the preparation of terminology standards /16/. The ISO Central Secretariat is situated in Geneva. The Secretariats of the individual Technical Committees, Sub-Committees and Working Groups respectively are held by one or the other of the national members.

There are some 165 Technical Committees (TCs) covering nearly the whole range of human activity. These Technical Committees consist of participating national members (P-Members), observing national members (O-Members), and liaisons (international organizations). Only P-Members have a right to vote. National members are free to participate in any ISO/TC as P or O Member. Nearly every ISO/TC has a Sub-Committee or Working Group dealing with the terminology of its scope.

More than 400 terminology ISO Standards and drafts thereof have been published. It should also be borne in mind that a few terms with definitions can be found in nearly any ISO Standard /17/.

1.052.2 National members of ISO

The national members of ISO carry out standardization of terminologies for their respective countries. At present 12,000 terminology standards are in existence in about 60 countries and 35 languages. This includes also international standards. In 1955 Unesco published a bibliography of standardized vocabularies, which was prepared by Wüster /18/. An updated version was prepared by Infoterm and published as Infoterm Series 2 in 1979 /19/.

1.052.3 IEC

As early as 1906, the International Electrotechnical Commission (IEC) started with terminology work. The first edition of the International

Electrotechnical Vocabulary (IEV) appeared 1938 comprising about 2000 scientific and technical concepts /20/ The second edition of the IEV consisted of chapters published between 1949 and 1970 comprising 24 subject groups, with about 8500 scientific and technical concepts.

Now a new procedure is applied. There are no more complete editions but each chapter is published depending on the need for revision. The definitions and pertinent terms are elaborated from the beginning in English, French and - if possible - in Russian. The IEV has English, French and Russian as languages of definitions and the following additional languages: German, Spanish, Italian, Dutch, Polish, and Swedish. Many national standardizing organizations have adapted chapters or parts of chapters of the IEV as standards. In 1979 IEC published the third edition of an index of all terms appearing in the IEV /21/, in 1983 the IEC multilingual dictionary of electricity in two volume covering 1800 pages.

1.052.4 Other authorities

Terminology commissions working in national or international authorities also prepare terminologies which are recommended for use in their particular field of activity. Thus a unified terminology is used in these authorities. Below a few examples are given: International Institute of Welding (IIW), World Meteorological Organization (WMO), International Union of Pure and Applied Chemistry (IUPAC), Bureau International de Poids et Mesures (BIPM).

1.052.5 Multinational and national firms

Multinational and national firms are also engaged in regulating terminologies within their field of activity. Unified terminologies facilitate the communication within the respective firms and with persons and organizations outside of these firms such as costumers, suppliers, customs officers, etc.

1.053 International unification of terminologies

The international unification of terminologies, which is a continuous task, can take place at four levels /22/:

(1) the concepts and systems of concepts,
(2) the definitions,
(3) the written forms of terms,
(4) the internal form, i.e. the literal meaning of terms (for instance the widened end of a taper key is expressed by the concepts "heel", "head" and "nose") in different languages /23/.

International unified terminologies do not only represent the basis for unambiguous international communication but also the basis for the functioning of international information networks. The need for such international unified terminologies is felt not only in regional systems such as that of the Council of Mutual Economic Assistance (CMEA) /24/, but also in international organizations and multinational firms.

There are two methods:
The first method is to discuss at international level the definitions of terms standardized in a given subject field by national standards institutions and to try to harmonize the divergent definitions and systems of concepts.

The second method is to agree immediately at international level on concepts, i.e. definitions and on the systems of concepts in ISO meetings or by correspondence of the ISO members participating in the terminology project in question. Terms in the official ISO languages, namely English, French and Russian are then assigned to these concepts. If national members having as mother tongue a language other than English, French or Russian are interested in this terminology project, they can add the terms in the language of their respective country which will mostly be published as supplement to the ISO Terminology Standard in question. The second method is mostly applied in new fields.

The endeavour of unification of terminologies, however, is not restricted to different languages, it is also applied to one language which is spoken in different countries (and sometimes on different continents) such as English, French, German, Spanish. For example, the French speaking countries, particularly France, Belgium and Canada co-operate closely to achieve unified terminologies. In this co-operation are included authorities, private enterprises and universities. In this respect the activities of the Office de la langue française (Office for French language), which is a department of the Ministry of Education in Québec, are worth mentioning. For the French language an International Council is responsible, namely the Conseil International de la Langue Française (CILF), the Secretariat of which has a comprehensive terminological card file in Paris. CILF publishes also terminological vocabularies.

Within the German speaking countries the Standards Organizations of Austria (ON), Germany (DIN) and Switzerland (SNV) combine their efforts for some terminological projects to reach a unified German terminology, for instance in the field of packaging data processing and others.

Regional unification of terminologies was started in 1966 by the members of the Council of Mutual Economic Assistance (CMEA). The following countries participate: Bulgaria, Czechoslovakia, the German Democratic Republic, Hungaria, Poland, Romania, the USSR. It is felt that a unified terminology is absolutely necessary for the exchange of ideas and goods. The All-Union Research Institute for Technical Information, Classification and Coding (VNIIKI) in Moscow, which coordinates standardization of terminologies in the USSR, contributes to a very large extent to this undertaking [25]. For this purpose unified CMEA terminology standards are published in the languages of the countries concerned.

Promoting this idea, Infoterm elaborated the "International Bibliography of Standardized Vocabularies" [26] which is revised and extended regularly. The implementation of the international unification of terminologies is a task to be undertaken by ISO in co-operation with all competent scientific and professional organizations of the world.

For some time ISO/TC 37 has been studying an "International key to terminology", which consists of international word elements, having the same or nearly the same meaning in many languages, and rules for the correct constructing of international terms. It is expected that such a key will play an important role in future [27].

1.06 WHAT ARE THE RESULTS OF TERMINOLOGY WORK?

In general the products of terminology work are:

- Terminological vocabularies, which are necessary tools for expert communication.

- Alphabetic translations dictionaries, which can be derived from terminological vocabularies
- documentation thesauri, which are tools for the indexing and retrieval of subject knowledge, stored in information systems and networks.

For practical work the following basic tools are required:

- in regard to subject work:
  the systematic, monolingual, terminological vocabulary, which outlines the system of concepts of a subject field or of a section thereof. This vocabulary describes the concepts by definitions, and has either the function to record the use of terminology (special vocabulary) at the time in question or to standardize it (terminology standard).

- in regard to the transfer of subject knowledge or technology into other languages:
  the systematic, multilingual, terminological vocabulary in which a unified system of concepts for the languages in question is represented by the terms of the various languages included in the vocabulary. Again, the concepts are described by definitions and the vocabulary has either the function to record the usage of terminology(special vocabulary) or to standardize it (terminology standard).

- in regard to the translations of texts:
  the alphabetic translation dictionary in which for the terms listed in alphabetic order equivalent terms in other languages are given.

- in regard to documentation and information:
  the mono- or multilingual thesaurus for the indexing of documents and the retrieval of information.

Modern computerized terminography (see 4.11) permits to output listings of terminographical data in any desired order according to user requirements.

1.07 WHO PREPARES TERMINOLOGIES?

The need to compile and record terminologies was recognized by the time when the special and professional languages developed. With the progress of science and the increasing use of the national languages in the sciences and in the humanities, scientists and scholars attempted to develop terms for the concepts of their field of study on the basis of the Latin and Greek languages in order to be understood internationally. Individual scholars, scientists, researchers, engineers from the fifteenth century onwards have been concerned with the preparation of terminologies and definition of concepts for their discipline and crafts such as in engineering Alberti, Leonardo da Vinci, in mathematics Leibnitz, in geometry Dürer, in chemistry Berthollet, Berzelius, Lavoisier and others.

In the 18th century great researchers and scientists established term systems which have served their purposes in modified form up to now. These are the term systems for biology established by Linné (1735) and for chemistry by Morveau (1782). For the formation of a unified terminology in botany, zoology and chemistry, naming rules were and are being established at international congresses. The first congress for botanists was held in 1867, that for zoologists in 1889 and that for chemists in 1892 /28/. Progress in technology made a specific approach in terminology necessary. Individual subject specialists and lexicographers have made great efforts in our century to prepare monolingual and multilingual special vocabularies. At the beginning of this century the increasing international co-operation in science, technology and economy made the preparation of reliable bi- and multilingual special vocabularies necessary. Owing to the great need for recorded terminologies individual lexicographers compiled vocabularies using a lexicographical approach as applied in general dictionary preparation. They concentrated above all on the preparation of translation vocabularies, the reliability of which was very frequently questioned by subject specialists. Even the production of special vocabularies prepared by subject specialists was not always satisfactory. The drawback of special vocabularies prepared by individual subject specialists of the subject fields concerned was that the terminology prepared reflects only the opinion of the subject specialist preparing the vocabulary. Therefore the team approach was found to be more appropriate for terminology projects. In the past century terminology commissions working within individual scientific organizations were set up and made responsible for the preparation of the terminology of the subject fields concerned. In our century these examples were also followed by engineering and professional organizations. In many countries - particularly in the Eastern countries - the Academy of Sciences have set up terminology commissions for individual subject fields. The systematic terminologies can only be prepared by the subject specialists of the subject field in question. Wüster emphasized that systemic work should be the domain of terminologists, i.e. of subject specialists with an additional training in terminology.

The German Association of Engineers (VDI) decided in 1900 to start a big vocabulary project called Technolexikon. This project intended to record the existing vocabulary of science and technology. For this project, carried out from 1902 to 1905, 3,6 millions of word slips were collected by a young linguist engaged by VDI for this purpose. This linguist was recommended by the well-known dictionary publisher Langenscheidt. The items of the Technolexikon were intended to be arranged in alphabetical order. In 1906 the young German engineer Alfred Schlomann published a small vocabulary of machine elements in classified order and in six languages with figures. The managing board of VDI stating in 1907 that the Technolexikon would need another forty years for its completion examined Schlomann's work. Finding out that Schlomann's new method of classified order is superior to the traditional lexicographical method used for the Technolexikon, the VDI management board stopped work on the Technolexikon and supported Schlomann. Until 1932 Schlomann published 17 comprehensive technical vocabularies called Illustrierte Technische Wörterbücher (ITW) for 17 different subject fields /29/. This should be an impressive example for our time. These vocabularies were prepared by a team of terminologists on the basis of guidelines elaborated by Schlomann.

Since the construction of documentation thesauri is included in terminology work, the thesaurus work occupies subject specialists and documentalists specialized in thesaurus construction. In the field of thesaurus construction, thesaurus commissions are engaged as well, especially for multilingual thesaurus projects.

After having been trained in the application of terminological principles and methods of terminography, students of subject fields, who complete their studies, could do research in the present usage of terminologies in the form of theses and by this do preparatory work for the recording of monolingual systematic terminologies for terminology commissions of technical, scientific, professional or standards organizations /30/. Students of interpreter's and translator's schools should also be encouraged to write diploma theses consisting of a comparison of terminologies in different languages /31/. The terminology work done in terminology offices and terminological data banks oriented to translation services is very valuable They collect terminologies reflecting the usage in one or more languages. Their collections represent an important basis for systemic terminology work of terminology commissions. Modern terminology work is a team work. The times of the individual terminologists or terminographers who prepare a special vocabulary of a subject field have gone, though such a vocabulary represents a valuable basis for the joint work in a commission.

Therefore, modern terminology work requires the work of terminology commissions which should be composed of the following types of specialists:

(1) The specialists of the subject field concerned who are responsible for the systems of concepts, definitions and terms of the terminologies to be prepared.

(2) A specialist for the application of terminological principles and of methods of terminography - a professional terminologist -, who advises the subject specialists on how to organize terminology work in the best way and on how to apply the most appropriate methods to the construction of systems of concepts, the selection of terms or the formation of new terms to be assigned to the concepts in the system.The professional terminologist is expected to co-ordinate also this project with other projects. He should be a subject specialist or linguist with a specific training in terminological principles. At least one member of the commission should have some training in the application of terminological principles and terminographical methods.

As regards the construction of documentation thesauri, subject specialists are guided by documentalists specialized in the application of thesaurus principles and organization of thesaurus work.

A terminological documentalist should be consulted when searching for pertinent terminological literature. He is expected to supply the terminology commission with the existing terminologies, terminological studies and other terminological literature. The literature should also include classification schemes and thesauri.

It is to be expected that in future, terminology commissions can draw more and more on terminological studies in form of theses prepared at universities. Therefore, the introduction of lectures on the theory of terminology at universities is to be promoted.

The systemic approach and the work in terminology commissions is valid also for the standardization of terminology.

1.08 GUIDELINES AND STANDARDS FOR TERMINOLOGY WORK

At the international level there is a need for standards applicable to all languages and subject fields. These standards promote the harmonization of terminology work and the compatibility of terminologies. It should be kept in mind that more and more information on concepts in form of terminological data are recorded in machine readable form (see 4.11). After computer processing these data can be disseminated world-wide. This requires unified terminological data elements.

In order to prepare unified terminologies in a format that is compatible at international, national or a institutional level, guidelines or standards are necessary. It has already been pointed out that naming rules for individual subject fields such as botany, zoology, chemistry have been in existence since the last century. Very detailed guidelines for the experts participating in the ITW-project (see 1.07) were elaborated by Schlomann. It was, however, not until 1936 that the elaboration of international standards for terminology work was started by ISA which was continued by ISO after the Second World War (see 1.05). Since these ISO Standards are valid for most languages and subject fields, they should be applied as widely as possible. Even if the need to prepare more specific guidelines for individual national or international organizations should arise, these ISO Standards can serve as the basis of such guidelines in order to warrant the international compatibility. A number of national and international organizations have developed guidelines for their specific needs such as the Committee for Scientific and Technical Terminology of the Soviet Academy of Sciences (KNTT AN), Moscow, USSR, the Office de langue française (OLF), Québec, Canada, and others.

Infoterm prepared and keeps an International Bibliography of Standards and Non-Standardized Guidelines for Terminology up to date, which is given as Annex 2.

1.09 TERMINOLOGY SCIENCE - THE SCIENTIFIC BASIS OF TERMINOLOGY WORK

In the thirties of this century efforts were started in Austria, Czechoslovakia, Germany and the Soviet Union to lay a scientific foundation for terminology science. These endeavours led to the creation of the socalled Vienna /32/, Prague /33/ and Soviet /34/ schools of terminology. Besides these classical schools of terminology there are a number of universities which started to carry out basic research in terminology in the last two decades, for instance in the GDR at the Institute of Applied Linguistics at the Technical University of Dresden /35/ and some other university institutes of the Karl Marx-University in Leipzig /36/. In 1979 a research centre for terminology called "Groupe Interdisciplinaire de Recherche Scientifique et Appliquée en Terminologie (GIRSTERM) was created at the Laval University in Quebec (Canada) /37/. At the same time the first chair for terminology was installed at this university. Some research in terminology is also done in the Nordic countries /38/ and at the University of Manchester (UMIST) in the United Kingdom /39/.

Within terminology science one can find three main directions:

- the subject fields-oriented terminology approach,
- the philosophy-oriented terminology approach,
- the linguistics-oriented terminology approach.

The subject fields-oriented approach is based on the conception that terminology as science is a field of study of its own, which is interdisciplinary. The philosophy-oriented approach is categorizing concepts in hierarchies. The linguistics-oriented approach applies linguistic and lexicographical methods for terminologies. This approach sometimes includes syntactical, grammatical and stylistic investigations of special languages, which are regarded as sublanguages of the common language. In such a way this approach forms a bridge to special languages research.

During the last decade research on special languages, in which terminology is only a part, and the teaching of special languages (LSP) aroused a broad interest among linguists and language mediators. The basic research in terminology was started and is still carried out mainly by subject specialists such as engineers, scientists, etc. While subject specialists investigate more the factual and conceptual side of terminology (characteristics, relationships and systems of concepts, etc.) linguists concentrate more on the phenomena concerning the expressions of conceptual units such as word forms, phrases, syntagmas, parts of texts.

1.091 The Vienna School of Terminology

In the first two decades of this century the efforts in creating a scientific foundation of technology in Germany were intensified. This gave rise to research on the technical language of the engineer. Many specialists (linguists, philosophers, documentalists, standardizers) joined this research. Professional organizations such as the Verein Deutscher Ingenieure (VDI) [Association of German Engineers] started to deal with problems of technical language. The young Austrian engineer Wüster followed enthusiastically the development on technical language in Germany. After having graduated in electrical engineering from the Technical University of Berlin, Charlottenburg, Wüster was awarded a doctor's degree at the University of Stuttgart in 1931 on grounds of his dissertation "Internationale Sprachnormung in der Technik" [International standardization of language in technology] [40]. Expanded and published in 1931 this book became the impetus for the foundation of ISA 37 "Terminology" and the preparation of terminological principles (see 1.051). This book is still a standard work on terminology. On the recommendation of the Soviet Academy of Sciences, this book was translated into Russian. This translation was published in 1935 [41]. Already a few years before the publication of the translation, the Soviet terminologist Drezen drew the attention of Soviet scientists and engineers to Wüster's research [42]. From that time onwards a contact between Wüster and Soviet terminologists had existed [43]. The book contains a detailed investigation into the terminology as tool of communication which deals with the nature of concepts, the relationships of concepts, the links between concepts, the characteristics of concepts, the description of concepts (definition), the formation of terms, the standardization of concepts and terms, the internationalization of concepts and terms and so on. It is the basis for the General Theory of Terminology [44], the founder of which is E. Wüster (see 2).

In 1931, after having finished his studies in Germany, Wüster returned to Wieselburg (Lower Austria) in order to take the function of manager of the firm Wüster & Co., an industrial plant producing wood working tools and strip steel. As from 1951 on he was manager and proprietor of this firm until his death in 1977 /45/. As from 1931 Wüster started to collect in Wieselburg terminological literature from all over the world as a basis for his scientific research in terminology /46/. From these collections a comprehensive library developed which is unique in the world. After Wüster's death this library was acquired by the Austrian Standards Institute and was moved to Infoterm in Vienna, where it is intended to establish an International Institute for Advanced Studies in Terminology /47/. This institute should continue Wüster's research.

Wüster's research activities gave rise to the establishment of a private research institute in Wieselburg, which functioned as a focal point of international terminology work /48/. After the Second World War Wüster intensified his scientific activities in terminology in Wieselburg. He inspired a number of scientists and engineers first in Vienna and later on in the Federal Republic of Germany /49/. This was the starting point of the Vienna School of Terminology /50/. But Wüster's ideas spread also to other countries and international organizations such as Unesco /51/, ISO, FEANI (Fédération Européen des Associations des Ingénieurs), and many others.

A very important aspect of the General Theory of Terminology is the standardization of concepts and terms. During the first two decades after World War II, Wüster concentrated on the preparation of terminological principles by ISO (see 1.051.1). Nearly all of the drafts for the Recommendations and the Standard with a total of 230 pages came from Wüster. These principles aim at the harmonization of international terminology work. At the same time Wüster continued to develop other details of the General Theory of Terminology. It is worth noting that besides his function as manager, Wüster was engaged in quite a number of other fields of science, engineering and economy /52/. He prepared about 500 publications dealing with terminology, standardization of terminology, international key to terminology, documentation, transliteration, theory of symbols, classification, theory of thesauri, UDC, filing principles, linguistics, planned languages, lexicology, vocabularies, methods of lexicography, language symbols, orthography, and others /53/.

Since progress in these fields requires intensive international co-operation, Wüster was president or member of a number of national and international committees in scientific, technical and professional organizations. As from 1955 he started also teaching as professor at the University of

Agriculture and Forestry in Vienna.

His thorough involvement in terminology research from 1930 to his death in 1977 resulted in a series of detailed studies of individual problems of terminology research forming part of his General Theory of Terminology. Some of these studies were published, others remained in form of manuscripts which are identified by specific reference numbers in his research archive [54]. The most important publications were the following studies:

(1) "Internationale Vereinheitlichung von technischen Fachausdrücken" [The international unification of technical terms] (1957) [55]
(2) "Das Worten der Welt" [The naming of the world] (1959) [56]
(3) "Die Struktur der sprachlichen Begriffswelt und ihre Darstellung in Wörterbüchern" [The structure of the linguistic conceptual world and its presentation in vocabularies] (1959) [57]
(4) "Begriffs- und Themaklassifikationen. Unterschiede in ihrem Wesen und ihrer Anwendung" [Concept and subject classifications. Differences in their nature and application] (1971) [58]
(5) "Die Umkehrung einer Begriffsbeziehung und ihre Kennzeichnung in Wörterbüchern" [The reversal of a concept relationship and its presentation in vocabularies] (1974) [59]

From 1972 to 1974 Wüster gave as honorary professor a course entitled "Introduction to the General Theory of Terminology and Terminological Lexicography" at the Department of General and Applied Linguistics of the University of Vienna. This is now a regular course at this department. For this course Wüster condensed all his detailed studies in a manuscript with the title "Einführung in die Allgemeine Terminologielehre und Terminologische Lexikographie" [Introduction to the General Theory of Terminology and Terminological Lexicography] which was published after Wüster's death in 1979 as volume 8 of the "Schriftenreihe der Technischen Universität Wien" [60]. In 1980/81 a research project financed by the Austrian Science Research Fund was launched with the aim to record Wüster's unfinished scientific studies [61]. Wüster left unfinished the "Wörterbuch der Terminologielehre" [Vocabulary of the theory of terminology], an extensive card file in systematic order with terms, definitions and their sources. This vocabulary - reflecting more than thirty years of research - is the most complete collection of terminology science and work in German language.

The Vienna School of Terminology which is based on the General Theory of

Terminology, continues Wüster's research activities in Vienna /62/.

1.092 The Prague School of Terminology

The Prague School of Terminology developed from the Prague School of functional linguistics, whose theories are based on the work of de Saussure and stressing the functional aspect of language which forms a sound foundation for a theory of terminology /63/. The leading representatives of the Prague School of functional linguistics were Beneš, Mathesius, Vachek and Trubetzkoy /64/. The Prague School of functional linguistics aimed at an investigation of the standard language from the functional viewpoint, i.e. an investigation of the standard language as tool of communication in all areas of the social life, in particular in the area of human culture, civilization and technology. The theory of the literary language, i.e. of the national, polyfunctional standard language, and its stylistic differentiation as well as the theory of language culture, which aims at improving language, influenced so-called functional economic linguists such as Vančura, Kopecky, Čoda in the thirties. These two theories form the basis of nearly all present-day terminological efforts in Czechoslovakia. The structural view of functional linguistics enabled Czech linguists to understand Wüster's theories. They included the relation between language - thought - reality in their theories. The language of science, i.e. a special language, a language for special purposes is a functional language. The smallest unit of functional language is the term. The terminological system is a system of designations which represents a system of concepts. Prague linguists distinguished four functional styles, namely the professional, aesthetic, journalistic and conversational style. The professional style represents the core of the literary language. The terminological investigation is first of all based on the analysis of scientific and technical texts. The term is a professional lexical unit and part of the functional professional style of the national literary language.

The linguistic norm can be codified. The codification of linguistic norms serves the stability of the language. The recording of terms and definitions representing concepts in terminological vocabularies and standards is meant by codification of terminology. Every codification of the linguistic norm supersedes the previous codification. The terminology standards are usually published by an authority, e.g. by a standard organization or by a professional institution. The standards are more authoritative than the vocabularies prepared by individuals.

The practical work has four aspects:

1 Analysis of scientific and technical texts
2 Application of methodology of language culture (conscious intervention)
3 Application of naming principles including the theory of word formation
4 Application of the logical principles for the classification of concepts and terms

The above listing indicates a close relationship between the "General Theory of Terminology" and the teachings of the Prague School of Terminology [65].

In terminology work, professional institutions co-operate with the Czechoslovakian Standards Committee for terminology which is guided by the Institute of Czech Language of the Academy of Sciences [66]. The Institute of Czech Language maintains a card file of standardized terms. At present more than 500 terminology standards, which partly comprise English, French, Russian and German equivalents, exist.

An eminent representative of the Prague School of terminology is Prof. Drozd, who is now on the chair for German language at the Charles University in Prague [67]. He organized a series of important symposia on terminological issues in Prague (see Annex 3 (437)). Basic research in terminology is also carried out by The Slovakian Academy of Sciences in Bratislava under the direction of Prof. Horecký [68].

At present, a number of excellent terminologists are engaged in basic and applied research of terminology in Czechoslovakia. They work for the Academy of Sciences, at universities and at the Czech Standards organization.

There has been and is a continuous exchange of information between the representatives of the Vienna and the Prague Schools of Terminology. Publications on the findings of this school are listed under 7 "Literature".

1.093 The Soviet School of Terminology

At the beginning of the thirties, Soviet scientists and engineers started to perform terminology research. They got to know Wüster's book "Internationale Sprachnormung in der Technik" which was translated into Russian in 1935 [69] and other scientific papers of Wüster, which were disseminated by Drezen. In 1933 the Soviet School of Terminology [70] was founded on the initiative of two engineers, Prof. Čaplygin, member of the Academy of Sciences of the USSR and the eminent terminologist Lotte [71]. They gave also the impetus to the setting up of the Commission for Technical Terminology, which was later called Committee for Scientific and Technical Terminology (KNTT) of the Academy of Sciences of USSR [72]. As with the other two schools of terminology, a strong link with standardization has always existed [73]. This Commission was entrusted with the following task:

(1) to elaborate a theory of scientific and technical terminology with a view to laying down the principles for the construction of technical terms and for the establishment of concept and term systems

(2) to do work aimed at the regulation and the establishment of systems of Russian terms and letter symbols in the principal disciplines of technology

(3) to prepare draft standards, listings of terms and letter symbols and to compile collections of recommended terms

(4) to introduce scientists and engineers into the methods to be applied to the regulation of Russian technical terminology

(5) to prepare guidelines (designed for teachers as well as authors of textbooks and scientific literature) on how to apply terminology and construct new terms.

Theory and method of terminology. - The outstanding terminologist Lotte did extensive research work for a theory of terminology. His findings were published in individual articles in the "Isvestija Akademii Nauk SSR". These articles were collected and appeared in 1961 as monograph having the title "Osnovy postroenija naučno-tehničeskoj terminologii" [Fundamentals of the Structure of Scientific and Technical Terminology] [74].

Lotte's investigations dealt with the following topics:

- Tasks and working methods for regulation of scientific and technical terminology
- Some principal problems connected with the selection and the structure of the scientific and techincal terminology
- The change of meaning as means for the formation of scientific and technical terminology
- Establishment of systems of scientific and technical concepts and terms
- Elements of terms
- The influence of the classification on the accuracy of terminology.
- Requirements of accuracy and unambiguity in terminology
- Formation of short forms of terms by omitting members

In 1942 the academician A.M. Terpigorev directed the Committee for Scientific and Technical Terminology. In an article on the regulation of technical terminology he drew the attention to the fact that the most widespread shortcoming of terminology was the existence of terms having more than one meaning. Furthermore he pointed out like other terminologists that the terminology work should be started with establishing systems of concepts.

In 1952 the book "Guide for the Preparation and Regulation of Scientific and Technical Terminology" was published. It was prepared under the direction of Terpigorev and with the authority of the Academy of Sciences in the USSR. In three chapters the principles for the regulation of terminology are given as they were found out by the Committee for Scientific and Technical Terminology. The first chapter deals with the classification of concepts, the second with the definition of concepts and the third with the selection and structure of terms/75/.

In recent years terminology work has grown more and more important and involves an increasing number of persons engaged in all branches of science, technology and economy. Therefore, under the authority of the Committee for Scientific and Technical Terminology and under the editorship of V.C. Kulebakin the Academy of Sciences in the USSR published in 1968 a book entitled "Terminological work. Theory and Methods" /76/. This book is geared to all who are concerned with the regulation or preparation of terminology in any field of science or technology. It is based on the lectures delivered by Lotte from 1938 to 1940, and in 1945 for the members of the Committee for Technical Terminology of the Academy of Sciences of the USSR, and on unpublished manuscripts. It was the purpose of these seminars to make their participants familiar with the principles governing the terminology work regardless of the subject field. Under the editorship of Siforov the KNTT of the Academy of Sciences of USSR prepared a revised version of Kulebakin's book. This book was entitled "Short methodological guide for the preparation and regulation of the scientific and technical terminology", and was published in 1979 /77/.

In the Soviet Union comprehensive basic and applied research as well as standardization of terminology is carried out. In the following only a few of the most important institutions should be mentioned /78/:

- Academy of Sciences of the USSR (AN/SSSR) in Moscow, (Scientific and Technical Committee of Terminology (KNTT)) /79/ /80/
- Academies of Sciences of the Soviet Republics
- All Union Research Institute for Information, Classification and Coding (VNIIKI) in Moscow, which is affiliated to GOSSTANDART (the Soviet Standards Organization) /81/
- Institute for Russian Language of the Academy of Sciences of the USSR in Moscow /82/
- Specialized institutes at different universities of the Soviet Union, particularly at the Moscow and Leningrad universities.

Important symposia were held (see Annex 3 (47+57) in:

1967, Leningrad, Linguistic problems of scientific and technical terminology. Academy of Sciences of the USSR /83/

1969, Moscow, Scientific Symposium. The position of terminology in the system of contemporary sciences. Moscow State University /84/

1971, Moscow, Scientific Symposium: Semiotic problems of the languages of science, of terminology and of information science. Moscow State University /85/

1979, Moscow, International Symposium: Theoretical and methodological problems of terminology. Academy of Sciences of the USSR, VNIIKI/ GOSSTANDART, Infoterm and AILA /86/

1981, Moscow, Problems of terminology regulation in the Academies of Sciences of the Soviet republics

1983, Moscow, All Union Conference "Scientific and technical terminology - NTT83. GOSSTANDART and VNIIKI

1.094 Basic research of terminology in other countries

1.094.1 Canada

Bilingual Canada started extensive terminological activities at the beginning of the seventies in order to solve the existing terminological problems. In order to reach as quickly as possible a high standard in terminology, five impressive international symposia were held (1972, 1973, 1974, 1975, 1977 and 1982) (see Annex 3, (71) and(100)). These symposia were convened in order to obtain the know-how for solving terminological problems. Quite a number of national meetings were also held. In addition, a large number of Canadian experts attended terminological symposia held in other parts of the world.

After having carefully studied the existing institutions of terminology research in the world a modern institution for research (GIRSTERM - Groupe interdisciplinaire de recherche scientifique et appliquée en terminologie) was established. It is directed by Prof Rondeau [87] who is head of department for terminology at Laval University in Québec (Canada).

Other universities in Canada carry out terminology research too. It is to be expected that the Canadian efforts in terminology research will develop a school of terminology of its own right. At present the achievements of other schools are carefully studied.

1.094.2 Federal Republic of Germany (FRG)

During the last two decades the research has been directed more towards special language altogether than to terminology alone [88] [89]. Problems of theoretical and applied terminology are studied by individual researchers [90]. There were a number of national meetings devoted to terminology, see Annex 3, (430.1). The FRG is a focal point of the philosophy-oriented terminology science in connection with the classification research [91] [92]. This concerns the conceptology which is both part of the General Theory of Terminology and of classification theory [93]. On this subject study conferences are organized every year [94].

1.094.3 German Democratic Republic (GDR)

At various universities in the GDR basic and applied research in terminology are carried out. The Institute for Applied Linguistics of the Technical University of Dresden has become known for its scientific activities in terminology. A number of papers on terminology research were published, e.g. by Baumann [95], Neubert G. [96], Reinhardt [97], Werner [98] and others (see 7 "Literature"). This Institute co-operates closely with the Institute for Computer Science. Two symposia on computer-aided terminography were held in Dresden in 1975 and 1978 (see Annex 3, (430.2)).

A focal point for Special Language and their teaching (LSP) developed under the direction of Prof. Hoffmann at the University of Leipzig [99].

1.094.4 United Kingdom

Under the direction of Prof. Sager linguistics oriented terminology research is carried out at the Department of Modern Languages of the University of Manchester (UMIST) [100].

1.094.5 Nordic countries

In Denmark and other Nordic countries a series of symposia were held in the past years, which were particularly directed to teaching of terminology and to Languages for Special Purposes (LSP). A number of papers on terminology teaching were published.

Some terminology research is in progress particularly at Copenhagen School of Economics [101] [102].

1.095 International co-operation in terminology research

The tendencies of the last years show that a closer international co-operation in terminology research is necessary. For this purpose international symposia should be held at regular intervals. The international symposia held in Moscow (1979) [103] and Québec (1982) [104] were the beginning. In 1982 the International Association for Terminology (TERMIA) was founded [105]. TERMIA is designed to organize international scientific symposia at regular intervals and to promote the international co-operation in terminology research and training [106].

In order to disseminate the results of terminology science, GIRSTERM in co-operation with Infoterm has published Selected Readings - volume 1 "Foundations of terminology" [107]. The International Bibliography of terminological literature (BT 1) was established in co-operation between GIRSTERM and Infoterm in order to assist researchers in finding the existing literature [108]. An international bibliography of the proceedings of terminological symposia is prepared by Infoterm as BT 11. In 1983 work on the International Bibliography of terminological theses and dissertations (BT 12) was started by Infoterm and the Copenhagen School of Economics [109].

1.10 COMPUTATIONAL AIDS FOR TERMINOLOGY WORK

In the fifties of this century when attempts failed to solve the problems of automatic translation, the idea of computer-aided translation was born. The analysis of the process of technical translation showed that a large part (up to 40 % and more) of the time of the translators is spent to clarify terminological problems. The translator is one of the avid users of terminologies. What he needs first of all are pairs of equivalent terms in different languages, which are reliable. For the clarification of terminological problems and the pooling of terminologies translation services of large national or international organizations or multinational firms established terminology offices with the function to aid the translator in its terminological problems and to improve in such a way his effectivity.

1.101 Terminology information

After the Second World War data processing entered all those fields of human activities where great quantities of pieces of information (data) had to be recorded, processed and stored in order to enable a direct or indirect access to these data. Computerization of data facilitated also the updating of data. In terminology work a large number of data on concepts and on their sources and contexts has to be recorded, processed and stored for later consultation. The smallest units of terminology information are called terminographical data (terminological and associated data), (see 4.05).

In conventional terminography these data were recorded on card files and, if possible, published as books. The updating of card files and of published vocabularies was a painstaking and time-consuming work. It occupied the valuable time of excellent experts. When published the vocabularies were partly obsolete. Though the use of card files for the developing of systems of concepts is still necessary, the data can be stored on an electronic data carrier which facilitates the terminology work. In such a way computerized terminology was born (see 4.11).

1.102 Terminological data banks (see also 6.21)

A terminological data bank is a collection of computerized terminographical data. Its purpose is to provide a direct or indirect access to the stored data by the user and to permit the processing of these data following specific characteristics. It is a powerful tool for terminology work and research. Users of such banks are subject specialists, terminologists, translators, scholars, scientists, linguists, scientific editors, standardizers, and others. Most of the present terminological data banks are translation oriented. In the seventies, however, some data banks were established for the purpose of terminology standardization. In the eighties new types of banks for terminology research and knowledge banks are to be expected (see 1.102.1). A list of the most important terminological data banks can be found in Part 6, Annex 9. The operation of a terminological data bank is very expensive and requires a highly qualified staff and good management. Most terminological data banks are combined or are linked with a terminology office.

1.102.1 Banks for terminology research

At present translation oriented terminological data banks store the terminological data and the associated data on individual concepts without indication of their relationships to other concepts. They are dictionary type banks [110], see 6.211.1. A connexion of the individual concepts is given only in form of an affiliation to a class, which is characterized by a subject code. This makes it possible to list all terms according to a documentation-oriented classification. This approach, which proved to be sufficient for certain applicatins, provides a structure of the vocabulary like a computerized reference work, in which each item is more or less isolated, giving the information on a specific key word. For the scientific research of subject specialists the conceptual structure of the subject field and their subfields are the relationships of concepts with a detailed indication of terminological data elements including sources is necessary.

These banks are called vocabulary type banks, (see 6.211.2). They will play an eminent role for future knowledge banks and expert systems, which will be installed in place of conventional banks. The key for a knowledge bank is the operation with concepts and a conceptual network which can be linked with facts. The European Community has launched a programme, which should also promote the development of artificial intelligence and of knowledge banks. This programme is called ESPRIT (European Strategic Programme for research and development in information technologies).

1.11 WORLD-WIDE CO-ORDINATION OF TERMINOLOGICAL ACTIVITIES

After the Second World War the progress in science, technology and economy and the efforts in a world-wide exchange of information gave rise to intensified terminological activities in all parts of the world [111], which made a co-ordination necessary. Co-ordination is to be understood as an activity which registers all ongoing activities in this field and disseminates information to those engaged in terminology in order to avoid duplication of efforts, to promote a closer co-operation between all parties concerned, to save money and specialized manpower and to refer to the existing holdings and organizations engaged in terminology.

The interaction of the theory of terminology, the terminology work and the terminology documentation as well as their world wide development is shown in a scheme to be found in Annex 1.

1.111 Efforts within Unesco

The United Nations Educational, Scientific and Cultural Organization (Unesco) was established in 1945 and has been in operation since November 1946.

The efforts put into the establishment of an international body for the co-ordination of terminological activities started shortly after the Second World War and were successfully concluded when the International Information Centre for Terminology (Infoterm) was founded in 1971. A descripiton of these efforts is given in the following excerpt of Infoterm Series 1 /112/.

The respective period of time can be divided into three decades:

(1) The Holmstrom Decade (1949-1958)
Unesco's Members realized very early the important role which terminology plays in their activities /113/.

In Resolutions 18.1 and 18.2 of the International Conference on Science and Abstracting, held by Unesco in 1949, it was recommended:

"- that adequate bilingual or polyglot dictionaries be provided for all fields of science and technology; and that they take account of national variations in usage and, if possible, be illustrated;
- that Unesco promote, in collaboration with the international scientific unions or other appropriate bodies, the standardization of terminology and the publication at appropriate intervals of lists of new terms in science and technology, with definitions and translations in various languages."

In response to these resolutions Unesco charged the polyglot English engineer Dr. J.E. Holmstrom to prepare a report on "Interlingual Scientific and Technical Dictionaries". The report was issued in mimeographed form in July 1949. The report culminated in the proposal,

that an International Terminological Bureau be founded under the common auspices of Unesco and ISO.

In 1950 Holmstrom joined Unesco's staff as Programme Specialist for Scientific Terminology in the Department of Natural Sciences.
In April 1950 Unesco issued another report prepared by Holmstrom, which had the title "Proposals for Unesco to sponsor the production of special dictionaries". In August a revised edition of this report followed.
In 1958 Holmstrom left Unesco.

From 1949 to 1958 the following books were published:

- bibliography of interlingual scientific and technical vocabularies in three editions 1951, 1952, 1953 /114/

- bibliography of monolingual scientific and technical glossaries. Volume I: National standards in 1955 [115]
- Scientific and technical translating in two editions 1957, 1958 [116].

The following resolutions were adopted:

- "to overcome difficulties of language by standardizing scientific terminology and by encouraging multilingual dictionaries" (Fifth General Conference, Florence 1950)
- "to further the improvement of scientific documentation by promoting the publication by appropriate international organizations of abstracts, of interlingual dictionaries and of lists of scientific and technical terms" (Sixth General Conference, 1952)

(2) The Interim Decade (1959-1968)

The decade following Holmstrom's retirement brought important conferences within Unesco on the international organizing of terminological work, but compared with Holmstrom's decade, there were few practical results of general importance.

In 1963 the Second Session of the International Advisory Committee on Bibliography, Documentation and Terminology, met in Paris.

The Committee laid down the programmes for three working parties. In the annex of the final report the draft agendas for the imminent meeting of Working Party No. 3 (on "Scientific Translation and Terminology") is given. It comprises five points, among which the following appear:

"1. Proposal of the International Federation of Translators (FIT) concerning the establishment of an international committee for the co-ordination of terminological activities.

3. Dictionaries and glossaries (gaps: in languages; in disciplines)."

In 1964 Working Party No. 3 on Scientific Translation and Terminology met in Rome. The agenda comprised the five points which the International Advisory Committee had agreed upon in 1963.

For point 1 on the agenda FIT had prepared in 1963 an exposé of its proposal, see Annex 4.

Thirteenth General Conference, Paris (1964).

The Department of Advancement of Science of Unesco published a comprehensive report on the results of the Thirteenth General Conference held in Paris in 1964. In this report the following passages appear, which are due to the recommendation of Working Party No. 3:

> "With this aim in view, exploratory contacts will be established with a number of bodies already active in the preparation of documentary glossaries, for the purpose of setting up four to six regional units entrusted with listing, compiling and disseminating documentary glossaries (technical vocabularies, key-work lists, descriptor lists, thesauri)
>
> ...
>
> Through a similar action a 'clearing house' will be set up in an appropriate existing organization to provide information on available textual or lexicographical material suitable for electronic processing: punched cards, punched tapes, magnetic tapes.
>
> ...
>
> To establish a central-co-ordinating body, Unesco, in collaboration with the 'Fédération Internationale de Traducteurs' (FIT) will invite the major international organizations concerned with terminology in the natural sciences and technology to work out a plan of concerted action to harmonize their terminological and lexicographical activities through a co-ordinating committee, seconded by a small permanent secretariat housed in a competent existing organization. Some of the functions which may be entrusted to the co-ordinating committee are: to collect information on terminological projects, documents and research and to make this information available; to increase the bibliographic coverage of terminological sources; to advise on the planning and implementation of lexicographical and terminological projects."

Very important and urgent proposals of Working Party No. 3 have, up to 1971, not yet been implemented, though they were approved by the Thirteenth General Conference. The bibliography of monolingual glossaries has not been continued, nor has the clearinghouse been established.

(3) The UNISIST Decade (1969 to present)

A new revival was brought about only by the UNISIST Project. In the following table the most important events are given:

Fifteenth General Conference, Paris

The Conference specifies once more its position towards the UNISIST project and the promotion of terminology.

1970 The Secretariat of Unesco issues during the first months of 1970 the Draft Programme and Budget for 1971 - 1972 on which the General Assembly is to pass a resolution about six months later. It started with the preparation in October 1969.

On the basis of this draft, Unesco charges Wüster in May and August with the preparation of two reports in which the elements for the establishment of a clearinghouse for terminology are compiled.

The Sixteenth General Conference took place in Paris in October of 1970 and lasted about a month. It adopted in accordance with the proposals made by the Secretariat, the resolution to convene in 1971 an intergovernmental conference which is expected to make recommendations for the implementation of the UNISIST system. Assistance will be given in the establishment of an international clearinghouse for sources of scientific and technical terminology.

1.112 Efforts made by the International Federation of Translators (FIT)

FIT, which was established in 1953, adopted resolutions aimed at better international co-operation in terminology right from the beginning. In 1959, the third FIT-Congress approved the ICCTA-Project, which was drafted by Jumpelt (then Vice-President of FIT) and Wüster (see Annex 4).

1.113 Efforts made by the Council of Europe

In the sixties the Council of Europe within the framework of the promotion of modern language teaching set up a Working Group for terminology which held several meetings between 1967 and 1970. This Working Group discussed the establishment of a European Centre for terminology which was to assist modern language teaching. This project, however, was never realized.

1.12 INFOTERM - ACTIVITIES, ACHIEVEMENTS AND PROJECTS

On the occasion of Infoterm's tenth anniversary of its foundation an extensive report was published in Infoterm Series 7 /11/. In the following an updated extract is given:

1.121 Brief history

It was not until the UNISIST idea was conceived that progress could be made in the various international efforts for terminology, which were combined in a Unesco-Project. UNISIST is a Unesco intergovernmental programme to encourage and guide voluntary co-operation in the exchange of scientific and technical information on national, regional and international levels. In 1970, Unesco on behalf of the UNISIST-Programme charged E. Wüster with the preparation of two reports on the state-of-the-art of terminology. These reports were:

Report 1: Inventory of Sources of Scientific and Technical Terminology.
and
Report 2: A Plan for Establishing an International Information Centre (Clearinghouse) for Terminology.

These reports were published in Infoterm Series 1 /18/. On the basis of Report 2, Unesco concluded in 1971 a contract on the establishment and operation of the International Information Centre for Terminology (Infoterm) with the Austrian Standards Institute /Österreichisches Normungsinstitut (ON)/. An additional reason for Unesco to conclude the contract with ON was the fact that the ON held the secretariat of the Technical Committee 37 "Terminology (principles and co-ordination)" of the International Organization for Standardization (ISO) and that a comprehensive library of terminological documents from all over the world had been built up by Wüster which was accessible to Infoterm.

Infoterm is financed by the Austrian Ministry for Construction and Technology, the Austrian Economic Chamber and the Austrian Standards Institute. This is considered by Austria as a contribution to the UNISIST programme. Specific projects undertaken by Infoterm are covered by Unesco contributions.

1.122 Function and tasks

The main function of Infoterm is to co-ordinate terminological activities carried out all over the world. The present tasks of Infoterm are:

- to collect terminological documents, in particular standardized and other specialized vocabularies
- to analyze terminological information
- to compile bibliographies
- to collect principles, methods and guidelines for terminology work
- to give advice on the application of principles and methods in terminology work and documentation
- to disseminate information on terminology science
- to function as editor of the Infoterm Series, the Infoterm Newsletters, the TermNet News and to contribute as author to these and other publications
- to prepare studies on specific problems of terminology
- to launch and carry out pilot projects (mostly in co-operation with other partners)
- to organize international meetings, symposia and conferences

The terminological information concerns all subject fields and languages. The present tasks of Infoterm are listed in a graphical scheme as Annex 5. The adaption of Infoterm's working programme to new international developments and requirements is discussed at Infoterm Advisory Board meetings, which are held annually.

1.123 Activities

When Infoterm commenced work in 1971 as an affiliated unit of the Austrian Standards Institute, it had the great asset to be able to base its activities on the know-how of Wüster and his extensive collection of international and national documents concerning terminology and lexicography. Since Wüster was honorary scientific director of Infoterm, his research library, being the basis for extensive international terminological activities, was used as part of the Infoterm documentation. After Wüster's death in 1977 the library was acquired by the Austrian Standards Institute and moved to Vienna in 1981. It is now located at Infoterm.

The last decade Infoterm can be divided into:

the introductory phase (1972-1976) and the TermNet-development phase (1977-1981).

At present Infoterm concentrates on the realization of the international network of terminological activities (TermNet).

During the first years Infoterm focused its activities on the continuation of Wüster's international commitments, on the contacting of agencies all over the world concerned with terminology and on the collection of terminological literature.

In 1974 Infoterm was able to extend its activities in regard to:

(1) co-ordination, information and advisory services
(2) the International Bibliography of Standardized Vocabularies
(3) the World Guide to Terminological Activities
(4) the recording of bibliographic data in machine-readable form
(5) terminology teaching and training

It became evident very early that only a network of terminology agencies and terminology preparing bodies, in which Infoterm would act as a co-ordinating centre, could cope with the terminological problems in the world. This network which is now being implemented is known as "TermNet" (see 1.13). In 1975 Infoterm started the preparatory work necessary for the development of TermNet. The positive evaluation of the TermNet study by experts, who were convened by Unesco in Vienna in 1977, led to the TermNet developing phase.

Through an increase of staff in 1979 Infoterm was put in a position to intensify its efforts towards a realization of TermNet. A number of TermNet activities were started such as the preparation of a TermNet Manual /119/ for the recording of data within TermNet, the elaboration of three TermNet Programmes, which were published in 1980 by Infoterm in the first issue of TermNet News, and others.

The present activities are described in greater detail below:

Collection and analysis of terminological information

Infoterm collects documents regarding terminology science, terminology work, organization, standardization, training and analyses the content of these documents. These documents include subject vocabularies of all fields and all languages.

Collection of standardized vocabularies

From 1972 to 1973 the research project "Recording and analysing the sources for the foundation and co-ordination of standardization of terminology in technology" was carried out. This project was started in the middle of 1972 and was finished with a report in May 1973.

This report gave the impetus to the compilation of the "International Bibliography of Standardized Vocabularies (BT 2)", which represents a completely new conception of an international bibliography, the beginning of which goes back to Wüster's efforts in 1949. When the number of entries in this bibliography was up to nearly 7500, investigations were made to find out how to computerize this file. It was intended to develop a model for future international bibliographies. With the generous assistance of the Language Service of Siemens, Munich an adaptation of their computer-programme was made so that the very specific needs of this model could be met. The contents of standardized vocabularies had to be described by means of language and other symbols.

In 1975 the recording of the data of this bibliography in machine-readable form was started by Infoterm. At the end of 1978 work was finished and in 1979 the bibliography came off the press as Infoterm Series 2 /120/. All new data are being recorded and the obsolete data are being deleted.

For reference and research purposes Infoterm keeps a complete file of terminological standards from all over the world. It provides a basis for the regular updating of the above mentioned bibliography. It is in addition used for diploma theses of university students.

Information and consultancy services

Infoterm disseminates information either by answering queries which have been directed to Infoterm or in form of publications (in-house documents, articles in periodicals, etc.) on:

- terminological publications
- libraries and other collections of terminological literature
- training in terminology (institutions, courses, teaching materials)

- terminological data banks and other devices for machine-aided terminology and terminography
- meetings and symposia held on terminological topics
- terminology commissions, committees and agencies
- terminology work in general carried out in various countries and subject fields
- terminology projects in progress or in planning
- terminology science (theories of terminology) and terminological and terminographic principles and methods

Advise on the application of terminological principles and methods

ISO Standards and ISO Recommendations which were prepared by ISO/TC 37, national standards derived from these documents as well as international and national guidelines of professional and governmental organizations or academies of the sciences form the basis for the advisory service. An "International Bibliography of standards and non-standardized guidelines for terminology" is kept up to date by Infoterm, (see Annex 2). These listings contain all international and national standards and guidelines for the unification of terminology work.

Unified guidelines are indispensible for institutions, organizations and experts who have to work in the terminological field when establishing systems of concepts and recording the terms of these concepts in conventional or machine-readable form. Especially organizations in countries in which a large number of terminologies are still to be developed and organizations which have started with terminology work, but also universities which are starting to include terminology into their curricula seek the advice of Infoterm frequently.

Editing and authorship

Since its foundation, Infoterm has built up a quite substantial publication programme. By this programme Infoterm has become known as author, co-author and editor in the field of terminology. Especially the volumes of the Infoterm Series contribute to the international dissemination of terminological knowledge. Besides the numerous monographs, among which one has to mention first of all Wüster's "Einführung in die Allgemeine Terminologielehre und Terminologische Lexikographie" /Introduction to the General

Theory of Terminology and Terminological Lexicography], Infoterm has prepared a large number of documents concerning various issues of terminology, which were presented at meetings or published in specialized journals.

There exist also in-house documents which are disseminated selectively to experts and institutions as required and in which various aspects of terminology are treated in depth. Furthermore, Infoterm functions as editor of the journals "TermNet News" [121] and "Infoterm Newsletter" [122] and as co-editor of "Fachsprache" [123] and as consulting editor of the journals "International Classification" and "Multilingua".

Finally one has to mention the series "Selected Readings in Terminology" which is co-edited by the Canadian "Groupe Interdisciplinaire de Recherche Scientifique et Appliquée en Terminologie (GIRSTERM)" and Infoterm. The first volume "Fondements théoretique de terminologie" was published by GIRSTERM in 1981. The English version "Theoretical foundations of terminology" will be published soon. This series is intended to disseminate knowledge on terminology and to introduce students and subject specialists to the many aspects of this discipline.

Research work in terminology

The theoretical foundation of terminology is very important for the development of principles and methods for terminology. Without appropriate foundations no progress in terminology can be expected. This was the reason why Infoterm paid particular attention to comparing the theories of the various schools of terminology and to disseminating information on them right from the beginning of its work. Of special relevance to Infoterm's work is the General Theory of Terminology [124].

Pilot projects

Pilot projects are designed to find optimum solutions to single problems of practical terminology work and terminology documentation. An example of this would be the development of formats for the recording of bibliographic, factographic and terminological data. During the last few years the emphasis has been laid on the development of practical and unified formats which make an exchange of such data possible.

An important pilot project was the "International Bibliography for Standardized Vocabularies (BT 2)".

A format for the recording of factographic data was developed in co-operation with the Institute for Automated Documentation (IMD) at the Computer Centre in Graz, Austria. This format was used for the recording of data concerning terminology organizations, commissions, projects, etc. These data are now stored on magnetic tape and will be published as the second edition of the "World Guide to Terminological Activities" in 1984 [125].

Work has also been started on the preparation of guidelines for the recording of terminological data in machine-readable form. In this connection expert meetings were convened on terminological data banks in general (1979) as well as on terminological data elements (1980, 1981, 1983) in particular.

Finally there should be made mention of a project which is carried out in co-operation with the Technical University of Vienna. It concerns the establishment of a computerized terminological retrieval system for specialized vocabularies in Japanese [126].

Terminology teaching and training

It became evident very quickly that success in terminology work in general and in TermNet in particular can only be achieved if qualified people are available. For this reason Infoterm intensified its efforts in the field of terminology teaching to the effect that

(1) courses on the theory of terminology and terminology work are offered at institutions of higher learning (universities)
(2) teaching materials are prepared
(3) post-graduate courses are held for subject specialists.

Infoterm made contributions to the establishment of courses at universities by sending teaching materials, advising teachers and giving lectures.

As regards teaching materials, Infoterm has prepared documents and overhead transparencies for international courses, which are widely used for courses in different countries.

on the basis of such materials for instance a course was held at the Georgetown University (USA) during the fall term of 1979 /127/ and lectures were delivered at different universities and for different institutions.

Infoterm made an essential contribution (with respect to planning, teaching content, teaching material etc.) to:

- the First National Seminar on terminology which was held at the Simon Bolivar University at Caracas (Venezuela) from 11 to 15 April 1983.
- the first seminar on terminology which was organized by Hispanoterm at the premises of the Consejo Superior de Investigaciones Scientificas in Madrid from 8 to 10 November 1983
- the training course on terminology which was organized by EACROTANAL (East African Centre for Research on Oral Traditions and National Languages) in Zanzibar from 12 to 16 December 1983.

At the Department of Linguistics, University of Vienna, a course is regularly taught by the director of Infoterm entitled "Einführung in die Terminologielehre" /Introduction to the General Theory of Terminology/. A short course on terminology science and work within the framework of the postgraduate training for librarians, documentalists and archivists at the National Library of Austria is taught by a staff member of Infoterm. Students who carry out scientific work on terminological issues, are provided with documents.

Various diploma theses and doctoral theses have been written in the field of terminology on the basis of information obtained from Infoterm /128/.

Infoterm in-house training

In addition to formal courses Infoterm has been offering in-house training. During the last five years many scholars and scientists of universities or language services of institutions from all over the world such as Brazil, Canada, South Africa, Tanzania, the United Kingdom, the USA, the USSR, Venezuela, visited Infoterm to acquaint themselves with the state-of-the-art in terminology science and work. A special asset of Infoterm's in-house training is the fact that trainees have access to the unique Wüster research library (see below). Infoterm assists also countries in which terminologies are less developed in their own languages /129/.

Organization of conferences and symposia

Infoterm convenes meetings, symposia, conferences with a view to informing about new developments in terminology or to provide a forum for discussions of experts on certain terminology issues. Some symposia have been organized by other organizations in co-operation with Infoterm.

The following conferences, symposia or meetings have been organized by Infoterm:

1975, Vienna
First Infoterm Symposium "International Co-operation in Terminology" [130]
1976, Vienna
Meeting of experts for the evaluation of Infoterm [131]
1977, Vienna
Meeting of experts for the evaluation of the study on the development of a network for terminology preparing bodies and terminology documentation centres [132]
1979, Vienna
First International Conference on Terminological Data Banks [133]
1980, Vienna
Meeting of experts on terminological data elements [134]
1981, Vienna
Meeting of experts on the recording of terminological data in machine-readable form
1983, Vienna
Meeting of experts on the recording of terminological data for machine processing [135]

The following symposia have been organized in co-operation with Infoterm:

1978, Quebec (Canada)
International Smposium on Terminology Teaching (organized by the Laval University) [136]
1979, Moscow (USSR)
International Symposium on Theoretical and Methodological Problems of Terminology (organized by VNIIKI/GOSSTANDART) [137]
1982, Quebec (Canada)
International Symposium on Terminology - Problems in Definition and Synonymy in Terminology (organized by GIRSTERM, OLF, DGTD)

Wüster Library and Infoterm research files

For more than four decades E. Wüster has collected terminological documents from all countries of the world at Wieselburg.

The legacy of Wüster is of great value to terminolgist, documentalists and the experts on standardization. This is especially true of the unpublished manuscripts of the "Defining vocabulary of the theory of terminology" and the "Key to international terminology" which are of high relevance to international subject communication /138/.

International Institute for Advanced Studies in Terminology

On grounds of the international development in terminology, it has become obvious during the last years that an International Institute for Advanced Studies in Terminology is urgently needed. Therefore Infoterm has directed the attention of competent organizations and institutions in the world to this need. The tasks of such an institute would be for instance to collect and analyse relevant research literature, to hold training courses and summer schools and to carry out scientific studies and pilot projects. Vienna would be a suitable location for such an institute because of its central location between East and West, the Austrian neutrality and the fact that there is a unique research library which can serve as a basis.

1.124 Future developments

In the years to come it will be necessary:

- to improve the tools for the harmonization and unification of terminology work
- to develop software packages for computerized terminography
- to develop unified formats for the recording of terminological data, and the recording of bibliographic data
- to develop models for specific terminological data banks (vocabulary type, dictionary type etc.)
- to increase the recording of terminologies in machine-readable form
- to disseminate the terminology science
- to train subject specialists in terminology

1.13 TERMNET - AN INTERNATIONAL NETWORK FOR TERMINOLOGY

TermNet is on the one hand a forum for the discussion of the scientific basis of terminology work and the exchange of practical know-how on it. On the other hand it is a network with the aim to foster the co-operation of scientific, technical and professional organizations:

- in the preparation of terminologies
- in the recording of terminological data in machine-readable form
- in the recording of bibliographic data on terminological literature
- in the dissemination of terminological information.

Complying with a recommendation of the First International Symposium in Vienna in 1975 a feasibility study for a network of terminological activities was carried out by Infoterm in 1976-77 [139]. After the evaluation of this study Infoterm got into contact with competent institutions and organizations in order to find out whether they are interested in such a co-operation. The result of the inquiry, draft proposals for three TermNet programmes and parts of a TermNet Manual as well as proposals for a plan of data management and other proposals were presented by Infoterm to the Infoterm Advisory Board at a meeting in 1979 [140] for discussion and acceptance. During the last few years Infoterm has made efforts to implement various items of the TermNet-Programmes.

In the following the three TermNet programmes are described briefly: A survey of the programmes is given in Annex 5.

1.131 TermNet Programme 1

This programme under the heading "Developing the scientific basis for terminology" is designed to foster the co-operation of institutions, organizations and experts working in terminology science and to assist them in the establishment of principles and methods with a view to studying and discussing the achievements made and to carry out common research projects. This programme is further designed to combine efforts in elaborating teaching aids [141] and to disseminate terminological principles and methods in particular those laid down in ISO Standards or national standards.

In order to promote the implementation of TermNet-Programme 2, Infoterm concentrates on the preparation of teaching material for and the organization of postgraduate courses for subject specialists.

1.132 TermNet Programme 2

This programme under the heading "Establishing a closer co-operation in preparing terminologies and recording them in machine-readable form" prusues the following aims:

- to encourage scientific, technical and professional organizations to prepare terminologies, to record them in machine-readable form, to keep them up to date and to make them generally available,
- to stimulate and facilitate the co-operation of these organizations in the field of terminology,
- to assist these organizations in the application of relevant terminological principles and terminographic methods as well as of guidelines for terminology work especially those for the recording of terminologies in machine-readable form.
- to promote the unification of terminologies in one or more languages and the creation of terminology standards,
- to assist organizations in countries with less developed terminologies in creating those terminologies, which they need for the transfer of knowledge and technology.

This comprehensive undertaking requires the co-operation of specialized and professional organizations (subject specialists), organizations processing terminological data (terminological data banks, computer centres) and organizations for dissemination of terminological data (terminological data banks, information systems, publishing houses).

The terminologies are to be prepared by subject specialists (e.g. terminology commissions) of competent specialized and professional organizations as far as possible in accordance with international terminological principles and with the assistance of professional terminologists.

A project "Key to international terminology" has to be launched the theoretical basis of which will have to be developed under TermNet Programme 1. In many languages a large number of scientific and technical terms consists of international stems or are composed of international term elements (mostly of Greek, Latin or other ethnic origin). New terms can be formed by making use of these elements and thus communication can be facilitated. Roots and affixes having the same or a similar meaning in several languages are to be collected, ordered according to a special classification scheme based on conceptual fields or a thesaurus and stored in a computer file. Some preliminary work for this was already carried out in Austria years ago by the late Prof. Wüster in Wieselburg [142].

1.133 TermNet Programme 3

This programme concerned with "Establishing a closer co-operation in collecting, recording, processing and disseminating terminological data and information" aims at the establishment of a network in terminology documentation. TermNet partners are expected to co-operate in the collection, analysis, recording and dissemination of terminological information comprising:

(1) terminographic data
(2) bibliographic data on terminological literature
(3) data on organizations engaged in terminological acitivities, terminology commissions and experts (who's who), terminological projects, etc.

(1) Terminographic data. - As regards the terminographic data, a study on the processing of the data that are prepared and recorded by specialized organizations will have to be carried out. This study will show under which conditions and in which formats terminological data banks or computer centres specialized in terminology are capable of processing terminographic data. The central question of this issue concerns the kind, number and form of data elements. Guidelines for the recording of terminographic data for machine processing are in preparation [143].

(2) Bibliographic data on terminological literature. - Infoterm has prepared sets of bibliographic data elements for the recording of bibliographic data in machine-readable form, see 6, Annexes 1 to 7. These data elements are compatible with the UNISIST Reference Manual [144] and the relevant ISO Standards. They form part of the "TermNet Manual", which contains complete descriptions of the International Bibliographies and Directories (BTs), see

6, Annexes 1 to 7. At present the titles and code numbers of the BTs are as follows:

BT 1	International Bibliography of terminological literature
BT 2	International Bibliography of standardized vocabularies
BT 3	International Bibliography of multilingual specialized vocabularies
BT 4	International Bibliography of monolingual vocabularies
BT 5	World Guide to Terminological Activities
BT 6	International Bibliography of standards and non-standardized guidelines for terminology
BT 7	International Bibliography of periodicals pertaining to terminology
BT 8	International Bibliography of bibliographies and catalogues containing terminological literature
BT 9	International Bibliography of computer-aided terminology
BT 10	International Directory of terminological meetings
BT 11	International Bibliography of reports and proceedings of terminological meetings
BT 12	International Bibliography of terminological theses and dissertations
BT 13	International Bibliography of collections of acronyms, initialisms and abbreviations
BT 14	International Bibliography of collections of neologisms
BT 15	Who's who in terminology (directory of experts)

Some of these bibliographies and directories have been published.

(3) Data on organizations, commissions and projects. - Data on organizations involved in terminology work, on terminology committees, commissions and projects are to be collected for the World Guide to Terminological Activities. The first edition was published as book as Infoterm Series 4 in 1977 /145/.

The World Guide was updated and computerized in 1983. Formats were developed for the four categories of factographic data elements (organizations, commissions, terminological data banks and projects) by Infoterm, see 6, Annexes 11 to 14.

The World Guide is to be kept up to date by a data flow organization within TermNet.

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/106/ TERMIA. Bulletin de liaison/News Bulletin 1 (1983), no. 1., p. 17.

/107/ RONDEAU, G.; FELBER, H. /ed./ Textes choisis de terminologie. Vol. 1, Fondements théoriques de la terminologie. Sous la direction de V.I. Siforov. Québec: GIRSTERM/Université Laval, 1981, 334 p.

/108/ RONDEAU, G.; FELBER, H. Bibliographie internationale de la terminologie. Exposé de la méthode. 2e ed. Québec: GIRSTERM/Université Laval, 1981, 68 p.

/109/ INFOTERM. An information pool of terminology theses and dissertations. Infoterm Newsletter 26. Lebende Sprachen 28 (1983) no. 1, p. 48.

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/114/ HOLMSTROM, J.E. Bibliography of interlingual scientific and technical dictionaries / Bibliographie de dictionnaries scientifiques et techniques multilingues. Paris: Unesco, 1951, 220 p.

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/116/ UNESCO. Scientific and technical translating and other aspects of the language problem. Paris: Unesco 1957, 282 p.

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/119/ FELBER, H. TermNet Manual (Extract). Wien: Infoterm, 1982, 41 p. (TermNet 3-82).

/120/ see /19/

/121/ INFOTERM/DGDT. TermNet News, No. 1 Ottawa. DGDT, 1981 (irregular)

/122/ INFOTERM. Infoterm Newsletter 1. Lebende Sprachen 21 (1976), no. 3, p. 139-142 (quarterly)

/123/ FELBER, H. /et al./ /ed./. Fachsprache. Internationale Zeitschrift für Fachsprachenforschung, -didaktik und Terminologie / Language for special purposes (LSP) resarch, teaching, terminology / Langue de specialité, recherche, didactique, terminologie. vol. 1, no. 1/2. Wien: Braumüller, 1979 (quarterly).

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/130/ INFOTERM. First Infoterm Symposium. International Co-operation in Terminology /Premier Symposium d'Infoterm. Coopération internationale en terminologie. München: Verlag Dokumentation, 1976, 332 p., A5 (Infoterm Series 3)

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[132] UNESCO. Report on the meeting for the evaluation of the Study on the development of a network for terminology information and documentation, prepared by Infoterm. Wien: Infoterm, 1977, 12 p.

[133] INFOTERM. Terminological Data Banks. Proceedings of the First International Conference convened in Vienna, April 2-3, 1979, by Infoterm. München/New York/London/Paris: K.G. Saur, 1980, 207 p., A5, (Infoterm Series 5).

[134] INFOTERM. Report on the meeting of experts on terminological data elements. Wien: Infoterm, 1980, 29 p., (TermNet 4-80).

[135] INFOTERM. Report on the second international meeting of experts on "Guidelines for the recording of terminological data for machine processing. Wien: Infoterm, 1983, 16 p. (TermNet 4-83).

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[139] FELBER, H. Study on the development of a network of terminology preparing bodies and terminology documentation centres, Wien: Infoterm, 1977, 68 p. (Infoterm 5-77).

[140] INFOTERM. Report on the Infoterm Advisory Board Meeting Wien: Infoterm, 1979, 9 p. (TermNet 5(6)-79).

[141] see [107]

[142] see [27]

[143] see [135]

[144] DIERICKX, H.; HOPKINSON, A. Reference manual for machine-readable bibliographic descriptions. 2nd rev.ed. Paris: Unesco, 1981, 341 p. (PGI/81/WS/22).

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Annex 1

AN OVERVIEW OF TERMINOLOGY WORK AND ITS INTERRELATIONSHIP WITH THE THEORY OF TERMINOLOGY AND TERMINOLOGY DOCUMENTATION

Table from Felber, H. "Theory of terminology, terminology work and terminology documentation". Interaction and world-wide development. Fachsprache 1, (1979) no. 1-2, p. 20-32

<table>
<tr><th rowspan="2"></th><th colspan="2">Theory of terminology</th><th colspan="2">Terminology work</th></tr>
<tr><th>general
a</th><th>specialized
b</th><th>monolingual
c</th><th>multilingual
d</th></tr>
<tr><td rowspan="2">1 Research</td><td>Nature of concepts and terms, relationships between concepts, assignment term-concept</td><td>Subject related laws of terminologies</td><td>Elaboration of systems of concepts</td><td>Comparison of systems of concepts. Construction of systems of concepts, which are independent of individual languages</td></tr>
<tr><td>Universities
— linguistics
— science of science
Academies of sciences</td><td>Universities
— departments of subject fields
Learned and professional societies</td><td>Universities
Academies of sciences
National learned and professional societies</td><td>Universities
Academies of sciences
International learned and professional societies</td></tr>
<tr><td rowspan="2">2 Standardization</td><td>Terminological principles and methods independent of subject fields and languages</td><td>Subject related rules and guidelines</td><td>Prescription of systems of concepts, definitions and terms (prescriptive standard)</td><td>Prescription of unified systems of concepts, definitions, terms (prescriptive standard) in the official languages</td></tr>
<tr><td>ISO/TC 37 "Terminology (principles and co-ordination)" and national standards committees</td><td>Specialized institutions of chemists (IUPAC), of physicists (IUPAP), of electrical engineers (IEC), etc.</td><td>National standards organizations, learned and professional societies
Language offices</td><td>International Organization for Standardization (ISO), International learned and professional societies
Language offices</td></tr>
<tr><td rowspan="2">3 Technical work, pilot projects</td><td>Testing of terminological and lexicographical principles and methods</td><td>Testing of subject related rules and guidelines</td><td>Description of terminology usage (descriptive standard)
Application of guidelines (a2 and b2)</td><td>Linguistic comparison of terminology usage
Application of guidelines (a2 and b2)</td></tr>
<tr><td>Learned and professional societies</td><td>Learned and professional societies</td><td>Learned and professional societies
Interpreter-schools
Terminology offices</td><td>Learned and professional societies
Interpreter-schools
Terminology offices</td></tr>
<tr><td rowspan="4">4 Training</td><td rowspan="4">Universities
— all departments
Post-graduate courses
Seminars
Workshops</td><td rowspan="4">Universities
— departments of subject fields
Post-graduate courses
Seminars
Workshops</td><td colspan="2">Introduction to guidelines (a2 and b2)</td></tr>
<tr><td colspan="2">Universities, departments of subject fields, post-graduate courses, seminars, workshops</td></tr>
<tr><td colspan="2">Introduction to terminological systems of individual subject fields</td></tr>
<tr><td colspan="2">Universities, departments of subject fields, Interpreters' and translators' schools, Post-graduate courses</td></tr>
</table>

Annex 1

	Terminology documentation		
	Literature e	Facts f	Agencies Commissions Terminology projects g
1 Research	Bibliographic data elements Methods of their recording, processing and exchange Formats Classification Models of terminology agencies	Terminological data elements Methods of their recording, processing and exchange Formats Classification Models of terminology banks	Data elements Methods of their recording, processing and exchange
2 Standardization	Definition and prescription of bibliographic data elements (obligatory for TermNet) Exchange format Classification	Definition and prescription of terminological data elements (obligatory for TermNet) Exchange format Classification	Definition and prescription of data elements for description of agencies, commissions and projects (obligatory for TermNet) Exchange format
3 Technical work, pilot projects	Pilot projects for 1 and 2 and for the International bibliographies of TermNet	Pilot projects for 1 and 2	Pilot projects for 1 and 2
4 Training	General courses, seminars and workshops in documentation In-house training hosted by terminology agencies		

Annex 2

INFOTERM Infoterm 4-84

The International Information Centre for Terminology (Infoterm), established in 1971, is sponsored by Unesco within the framework of the UNISIST programme. It works in liaison with the Technical Committee 37 "Terminology (principles and co-ordination)" of the International Organization for Standardization (ISO). Infoterm is affiliated to Österreichisches Normungsinstitut (ON). Address: Infoterm, Österreichisches Normungsinstitut, Postfach 130, Heinestraße 38, A-1021 Wien, Austria. Tel. 0222/267535 310

BT 6 - International Bibliography of Standards and Non-Standardized Guidelines for Terminology

0 Symbols used

Language symbols / Indicatifs de langue

D	German/allemand	F	French/français
E	English/anglais	S	Spanish/espagnol
Da	Danish/danois	Pt	Portuguese/portugais
Nl	Dutch/néerlandais	R	Russian/russe
Sv	Swedish/suédois	Cs	Czech/tchèque
		Pl	Polish/polonais

Symbol Sigle	Names of standards institutions Noms des institutions de normalisation	Standards symbols Indicatifs de normes
AFNOR	Association française de normalisation (France)	NF Norme expérimentale
ANSI	American National Standards Institute (USA/Etats-Unis)	ANSI
BSI	British Standards Institution (United Kingdom/Royaume-Uni)	BS
ASMW	Amt für Standardisierung, Meßwesen und Warenprüfung (German Democratic Republic/République Démocratique Allemande)	TGL, FB
DIN (DNA)	Deutsches Institut für Normung e.V. (Federal Republic of Germany/République fédérale d'Allemagne)	DIN Vornorm/Experimental Standard Entwurf/Draft/Projet
DS	Dansk Standardiseringsrad (Denmark/Danemark)	DS

GOSSTANDART	Gosudarstvennyj Komitet Standartov Soveta Ministrov SSSR [State Standards Committee of the Council of Ministers of the USSR] (USSR/URSS)	GOST
IGPAI	Repartiçao de normalizaçao (Portugal)	NP I (Draft/Projet)
IRANOR	Instituto Nacional de Racionalización y Normalización (Spain/Espagne)	UNE PNE (Draft/Projet)
ISO	International Organization for Standardization	ISO DIS (Draft International Standard) DP (Draft Proposal) DAD (Draft Addendum)
IZWTI	Internationales Zentrum für wissenschaftliche und technische Information [International centre for scientific and technical information] (German Democratic Republic/République Démocratique Allemande)	NTV
NNI	Nederlands Normalisatie-Instituut (Netherlands/Pays-Bas)	NEN Ontwerp (Draft/Projet)
ON	Österreichisches Normungsinstitut (Austria/Autriche)	ÖNORM
PKNiM	Polski Komitet Normalizacji, Miar i Jakości (Poland/Pologne)	PN
SEV/RGW	Sovet ekonomičeskoj vzaimopomošči/ Rat für gegenseitige Wirtschaftshilfe/Council for mutual economic assistance	ST SEV (USSR) ST RGW (GDR)
SIS	Standardiseringskommission i Sverige (Sweden/Suède)	SIS
VNIIKI	Vsesojuznyj Naučno-Issledovatel'skij Institut Techničeskoj Informacii, Klassifikacii i Kodirovanija [All-Union scientific research institute for technical information, classification and coding]. (Institution of GOSSTANDART/Institut de GOSSTANDART) (USSR/URSS)	

Other institutions

CIOMS	Conseil des Organisations Internationales des Sciences Medicales
IAEA	International Atomic Energy Agency
MCNTI	Meždunarodnyj Centr Naučnoj i Tehničeskoj Informacii [International Centre for Scientific and Technical Information] (USSR/URSS)
OLF	Office de la Langue Française, Québec (Canada)
PET	Office of Education Panel on Educational Terminology (USA)
WHO	World Health Organization/Organisation Mondiale de la Santé
ZIID	Zentralinstitut für Information und Dokumentation[Central Institute for Information and Documentation]. (German Democratic Republic/République Démocratique Allemande)

MESC	Monbusyoo Gakuzyutu Kokusaikyobu Zyoohoo - Tosyokanka [Science Information and University Library Division] (Japan/Japon)
TNC	Tekniska Nomenclaturcentralen (Sweden/Suède)

1 Terminological principles and methods of terminography

1.1 In the following the ISO Recommendations and the ISO Standard prepared by ISO/TC 37 and their national versions of these documents are given:

Class 1 / Catégorie 1

E ISO. Vocabulary of terminology. Genéve: ISO, jun. 1969, 20 p. A4 (ISO/R 1087-1969).

F ISO. Vocabulaire de la terminologie. Genève: ISO, jun. 1969, 20 p., A4 (ISO/R 1087-1969).

E/F ISO. Vocabulary of terminology/Vocabulaire de la terminology. 48 p., A4 (ISO/DAD 1087, oct. 1973).

- D DNA. Wörterbuch der Terminologielehre. Deutsche Benennungen als Zusatzsprache zu ISO/DR 781. 3 p., A4 (3. Vorlage "ISO 781 D", mai 1967).
- Da DS. Terminologiens terminologi [Vocabulary of terminology]. København: DS, 1978, 22 p.,.A4 (DS/ISO/R 1087).
- S IRANOR. Vocabulario de la terminologia [Vocabulary of terminology]. Madrid: IRANOR, 1979, 18 p., A4 (UNE-1-070-79).
- Cs ...Slovnik z oboru teorie názvoslovi. 1968. (In: Normalizace 16, 1968, Annex p. 1-16).
- Cs ...Slovnik teorie názvoslovi. Česke názvy jako přidavek k předloze ISO/DR 781. 3 p.
- Pl PKNiM. Wytyczne opracowywania norm. Normy terminologiczne. Warszawa: Wydawnictwa Normalizacyjne, 1973, 5 p., A4 (PN-73/N-02004, jan. 1974).

Class 2 / Catégorie 2

E ISO. Guide for the preparation of classified vocabularies (Example of method). Genève: ISO, jan. 1969, 12 p., A4 (ISO/R 919-1969).

F ISO. Guide pour l'élaboration des vocabulaires systématiques (Exemple de méthode). Genève: ISO, jan. 1969, 12 p., A4 (ISO/R 919-1969).

- D DNA. Fachwörterbücher. Stufen der Ausarbeitung. Berlin: Beuth,1974, 10 p., A4 (Vornorm DIN 2333).
- F AFNOR. Principes généraux de terminologie. Règles générales pour l'élaboration des vocabulaires techniques. Paris: AFNOR, 1967, 12 p., A4 (NF X 03-001).
- S IRANOR. Guía para la elaboración de vocabularios sistemáticos. (Ejemplo de método). Madrid: IRANOR, 1983, 10 p., A4 (UNE 1-069-83).
- Pl PKNiM. Wytyczne opracowywania norm. Normy terminologiczne. [Guide for drafting standards. Terminological standards] Warszawa: Wydawnictwa Normalizacyjne, 1980, 7 p. (PN-80/N-02004).

Class 3 / Catégorie 3

- E ISO. Naming principles. Genève: ISO, apr. 1968, 15 p., A4 (ISO/R 704-1968).
- E ISO. Principles and methods of terminology. 21 p. A4 (ISO/DIS 704, 1984).
- F ISO. Principes de dénomination. Genève: ISO, apr. 1968, 15 p., A4 (ISO/R 704-1968).
- F ISO. Principes et méthodes de la terminologie. 21 p., A4 (ISO/DIS 704, 1984).
- R ISO. Principy i metody terminologii /Principles and methods of terminology/. 21 p., A4 (ISO/DIS 704, 1984).
  - D DIN. Begriffe und Benennungen. Allgemeine Grundsätze. Berlin: Beuth, 1979, 19 p., A4 (DIN 2330).
  - D DIN. Begriffssysteme und ihre Darstellung. Berlin: Beuth, 1980, 26 p., A4 (DIN 2331)
  - E BSI. Recommendations for the selection, formation and definition of technical terms. London: BSI, 1963, 20 p., A5 (B.S. 3669:1963).
  - Nl NNI. Terminologie, begripsvorming en definiering. Rijswijk: NNI, 1962, 17 p., A4 (Ontwerp NEN 3188).
  - S IRANOR. Principios de denominación. Madrid: IRANOR, 1981, 11 p., A4 (UNE 1-066-81).
- E ISO. International unification of concepts and terms. Genève: ISO, oct. 1968, 16 p., A4 (ISO/R 860-1968).
- F ISO. Unification internationale des notions et des termes. Genève: ISO, oct. 1968, 16 p., A4 (ISO/R 860-1968).
  - D DIN. Internationale Angleichung von Fachbegriffen und ihren Benennungen. Berlin: Beuth,1979, 8 p., A4 (DIN 2332).
  - S IRANOR. Unificación internacional de las nociones y de los términos. Madrid: IRANOR, 1981, 11 p., A4, (UNE 1-068-81, mar. 1981).
  - Pt IGPAI - REPARTIÇAO DE NORMALIZAÇAO. Documentaçao. Unificaçao de conceitos e de termos de uso internacional. Principios. Lisboa: IGPAI - Repartiçao de normalizaçao, 1971, 8 p., A4. (I-1175).
  - Cs ... Mezinárodni unificace pojmu a názvu. (In: Československý terminologický časopis 4, (1965), no. 2, p. 115-121).

Class 4 / Catégorie 4

- E ISO. Layout of multilingual classified vocabularies. Genève: ISO, nov. 1969, 23 p., A4 (ISO/R 1149-1969).
- E ISO. Layout of multilingual classified vocabularies. 29 p., A4 (ISO/DP 1149, aug. 1979).
- F ISO. Présentation des vocabulaires systématiques multilingues. Genève: ISO, nov. 1969, 23 p. A4 (ISO/R 1149-1969).
  - S IRANOR. Presentación de los vocabularios sistemáticos multilingües. Madrid: IRANOR,1982, 19 p., A4 (UNE 1-072-82).

E ISO. Layout of monolingual classified vocabularies. 23 p., A4 (ISO/DP 4466, jun. 1979).

D DIN. Ausarbeitung und Gestaltung von Veröffentlichungen mit terminologischen Festlegungen. Stufen der Terminologiearbeit. Berlin: Beuth, 1982, 16 p., A4 (Vornorm DIN 2339 Teil 1).

D DIN. Ausarbeitung und Gestaltung von Veröffentlichungen mit terminologischen Festlegungen. Normen. Berlin: Beuth, 1984, 29 p., A4 (DIN 2339 Teil 2).

F AFNOR. Principes généraux de terminologie. Règles générales pour l'élaboration de vocabulaires techniques. Paris: AFNOR, 1967, 12 p., A4 (NF X 03-001).

E ISO. Symbols for languages, countries and authorities. Genève: ISO, nov. 1967, 15 p., A4 (ISO/R 639-1967).

F ISO. Indicatifs de langue, de pays et d'autorité. Genève: ISO, nov. 1967, 15 p., A4 (ISO/R 639-1967).

E/F ISO. Language code and authority symbols/Code de langue et indicatifs d'autorité. 38 p , (ISO/DIS 639-1984).

D DIN. Sprachenzeichen mit einem Anhang von Autoritätszeichen. Berlin: Beuth, 1982, 7 p. (Entwurf DIN 2335).

E BSI. Recommendations for symbols for languages, geographical areas and authorities. London: BSI,1965, 18 p., A5 (BS 3862:1965).

Sv SIS. Ordlistor. Redigeringsregler. Stockholm: SIS, 1968, 10 p , A4 (SIS 01 11 05).

F AFNOR. Principes généraux de terminologie. Les langues dans les vocabulaires techniques multilingues. Indicatifs pour les désigner - Ordre de présentation. Paris: AFNOR, 1967, 3 p., A4 (NF X 03-002).

F AFNOR. Principes généraux de terminologie. Indicatifs de pays et d'autorité dans les vocabulaires techniques. Paris: AFNOR, 1968, 6 p., A4 (NF X 03-003, fascicule de documentation)

S IRANOR. Simbolos utilizados para idiomas, paises y autoridades. Madrid: IRANOR, 1977, 9 p., A4 (UNE 1-091-77).

Pt IGPAI - REPARTIÇAO DE NORMALIZAÇAO. Simbolos de linguas, paises e autoridades competentes. Lisboa: IGPAI - Repartiçao de Normalizaçao, 1970, 11 p., A4 (NP-817).

Pl PKNiM. Kody nazw jęzkykow. Warzawa: Wydawnitctwa Normalizcyjne, 1978, 11 p. (PN-77/N-09012).

R SEV. Kody jazykov. Moskva: SEV, 1976, 26 p., A4 (ST SEV 251-76).

E ISO. Lexicographical symbols particularly for use in classified defining vocabularies. Genève: ISO, nov. 1973, 31 p., A4 (ISO 1951-1973).

F ISO: Symboles lexicographiques particulièrement pour l'emploi dans les vocabulaires systématiques à définitions. Genève: ISO, nov. 1973, 31 p., A4 (ISO 1951-1973).

D DIN. Lexikographische Zeichen für manuell erstellte Fachwörterbücher. Berlin: Beuth, 1979, 19 p., A4 (DIN 2336).

S IRANOR. Símbolos lexicográficos especialmente utilizados en los vocabularios sistemáticos con definiciones. Madrid: IRANOR, 1983, 35 p. (UNE 1-073-83/ISO 1951).

E ISO. Magnetic tape exchange format for terminological/lexicographical records (MATER). 35 p., A4 (ISO/DP 6156, apr. 1980, 3rd draft).

F ISO. Disposition des données pour l'échange des enregistrements terminologiques/lexicographiques sur bande magnétique. 31 p., A4, (ISO/DP 6156, apr. 1980, 3ème avant-projet).

D DIN. Magnetband-Austauschformat für terminologische/lexikographische Daten (MATER). Berlin: Beuth, 37 p., A4 (DIN 2341, Vornorm Mai 1980)

These standards are on sale at the national standards organizations which are members of ISO.

1.2 International Electrotechnical Commission (IEC) / Commission Electrotechnique Internationale (CEI)

E/F CEI/IEC. Directives générales relatives aux travaux d'élaboration du Vocabulaire électrotechnique international/General directives relating to the preparation of the International Electrotechnical Vocabulary. Genève: CEI/IEC, 1972. 19 p., A4 (1 Bureau Central/Central Office 1029).

1.3 Other standards / Autres normes

D DNA. Regeln für die alphabetische Ordnung (ABC-Regeln) [Rules for alphabetic filing]. Berlin: Beuth, 1962, 7 p., A4 (DIN 5007).

D DIN. Regeln für das alphabetische Ordnen. Berlin: Beuth, 1977, 8 p., A4 (Entwurf, DIN 5007).

D ON. Regeln für das Ordnen von Schriftzeichenfolgen (ABC-Regeln) [Rules for the filing of strings of characters]. Wien: ON, 1981, 15 p., A4 (ÖNORM A 2725).

D DDR. Regeln für die alphabetische Ordnung von Namen (ABC-Regeln) [Rules for the alphabetical filing of names]. Berlin: ZIID, 1962, 6 p., (TGL 0-5007).

D DIN. Begriffssystem Zeichen. Allgemeine Grundlagen [System of concepts concerning signs and symbols; general principles]. Berlin: Beuth, 1982, 14 p. (Vornorm DIN 2338 Teil 1).

D DIN. Begriffssystem Zeichen. Zeichentypologie.[System of concepts concerning signs and symbols; typology of signs and symbols]. Berlin: Beuth, 1982, 15 p., (Vornorm DIN 2338 Teil 2).

D DIN. Kurzformen für Benennungen und Namen. Bilden von Abkürzungen und Ersatzkürzungen. Begriffe und Regeln [Short form for terms and names; concepts of rules]. Berlin: Beuth, 1982, 5 p. (Entwurf DIN 2340).

D DIN. Abkürzungsregeln für Bezeichnungen in der juristischen Fachsprache. [Rules for the abbreviation of designations in the juridical terminology]. Berlin: Beuth, 1976, 6 p. (Entwurf DIN 31620).

R GOSSTANDART; VNIIKI. Metodičeskie rekomendacii po terminologičeskomu kontrolju normativno-tehničeskih dokumentov [Methodological recommendations for terminological checking of standardizing technical documents]. Moskva: GOSSTANDART, 1973, 21 p., A5.

R GOSSTANDART; VNIIKI. Metodika standardizacii naučno-tehničeskoj terminologii [Method of standardization of scientific and technical terminology]. Moskva: GOSSTANDART, 1977, 49 p., A5 (RD 14-74).

R GOSSTANDART; VNIIKI. Standardizacija terminologii v SSSR i meždunarodnyh organizacijah [Standardization of terminology in the USSR and in international organizations]. Moskva: GOSSTANDART, 1978, 48 p., A5 (Standardizacija 78).

R GOSSTANDART; VNIIKI. Metodika standardizacii sokroščenij russkih slov i slovosočetanij [Methodology of standardization of abbreviations of Russian words and compound words]. Moskva: GOSSTANDART, 1977, 38 p., A5.

J NIHON KIKAKU KYOOKAI/JAPANESE STANDARDS ASSOCIATION /ed./. Yoogo kikaku no matomekata tebiki [Manual for the preparation of terminological standards]. Tokyo: Japanese Standards Association, 1975, 58 p.

1.4 In addition the following non-standardized guidelines for terminology and terminological lexicography have been published:

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2 Thesauri

2.1 Standardized Guidelines

2.1.1 Monolingual

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F ISO. Documentation - Principes directeurs pour l'etablissement et le développement de thesaurus monolingues. Genève: ISO, aug. 1974, 13 p., A4 (ISO 2788-1974).

- D DIN. Richtlinien für die Erstellung und Weiterentwicklung von Thesauri. Berlin: Beuth. 12 p., A4 (DIN 1463, mar. 1976).
- D DDR. MINISTERIUM FÜR WISSENSCHAFT UND TECHNIK. Einsprachiger Informationsrecherchethesaurus - Struktur, Zusammensetzung, Darstellungsform. Berlin: Staatsverlag der DDR, 1976, 8 p., A4 (UTGL RGW 174-75).
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- E ANSI. Guidelines for Thesaurus Structure, Construction and Use. New York: ANSI, 1980, 18 p., 215x276 (ANSI Z 39.19-1980).
- F AFNOR. Documentation. Règles d'établissement des thesaurus en langue française. Paris: AFNOR, 1981, 20 p., A4.
- S ICFES; FID/CLA. Documentación. Directrices para el establecimiento y desarrollo de tesauros monolingues. Bogotá: ICFES, 1980, 71 p. (Norma colombiana 1476).
- R SEV. Tezaurus informacionno-poiskovyj odonjazyčnyj: Struktura, sostav i forma predstavlenija /Monolingual thesauri: structure, composition, form of presentation/. Moskva: SEV, 1975, 7 p., A4, (ST SEV 174-1975).
- R GOSSTANDART. Sistema standartov po informacii, bibliotečnomu i izdatel'skomu delu. Tezaurus informacionno-poiskovyj odnojazyčnyj. Pravila razrabotki, struktura, sostav i forma predstavlenija /System of Standards "Information, Libraries and Publishing". Monolingual Thesaurus for Information Retrieval. Rules for development, composition, structure and form of presentation/. Moskva: Gosstandart, 1981, 16 p., A5 (GOST 7.25-80).

2.1.2 Multilingual

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D DIN. Indexierung zur inhaltlichen Erschließung von Dokumenten - Begriffe. Grundlagen. Berlin:Beuth, 1983, 5 p., A4 (Vornorm DIN 31623 Teil 1).

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3.2 Non-standardized guidelines

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Annex 3

A SELECTION OF RELEVEANT TERMINOLOGICAL SYMPOSIA HELD IN DIFFERENT COUNTRIES OF THE WORLD FROM 1959 ONWARDS

The countries are arranged in accordance with the Universal Decimal Classification (UDC).

Abbreviations
Org. = Organizer

AILA = International Association for Applied Linguistics
Akademija Nauk SSSR = Academy of Sciences of the USSR, Moscow
ALSED = Anthropology and Language Science in Educational Development, Unesco, Paris
Aslib = (formerly: Association of Special Libraries and Information Bureaux, London, U.K.)
CEC = Commission of the European Communities
COCTA = Committee on Conceptual and Terminological Analysis, International Political Science Association
COMTERM = Terminology Commission of AILA
EACROTANAL = Eastern African Centre for Research on Oral Traditions on African National Languages, Zanzibar, Tanzania
FID/CR = International Federation for Documentation, Committee Classification Research
GIRSTERM = Groupe interdisciplinaire de recherche scientifique et appliquée en terminologie, Université Laval, Québec, Canada
GOSSTANDART = Soviet Standards Organization, Moscow, USSR
HISPANOTERM = Centro de Terminologia Cientifica y Tecnica [Scientific and Technical Terminology Centre], Madrid, Spain
NORDTERM = Co-operation of Denmark, Finland, Norway and Sweden in the field of Terminology
VNIIKI = All Union Scientific Institute for Technical Information, Classification and Coding (Special Institute of GOSSTANDART), Moscow, USSR

(100) International

1972 Baie Saint-Paul, Québec 2 and 3 October	Colloque international de terminologie. Les données terminologiques [International symposium on terminology. Terminological data] Org.: Office de la langue française (OLF), Québec, Canada
1973 Lac Delage, Québec 16 to 19 October	Colloque international de terminologie. La normalisation linguistique [International symposium on terminology. Standardization of language] Org.: Office de la langue française (OLF), Québec, Canada
1974 Levis, Québec 29 September to 2 October	Colloque international de terminologie. L'amenagement de la néologie [International symposium on terminology. Neology planning] Org.: Régie de la langue française (=OLF), Québec, Canada

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1975 Dresden 5 to 7 February	1. Internationales Kolloquium "Rechnerunterstützte fachsprachliche Lexikographie [1st International Symposium Computer-aided terminological lexicography] Org.: Technische Universität Dresden, GDR
1975 Vienna 9 to 11 April	International co-operation in terminology /Co-operation internationale en terminologie/ Org.: International Information Centre for Terminology (Infoterm), Vienna, Austria
1975 Lac Delage, Québec 5 to 8 October	Colloque international de terminologie. Essai de définition de la terminologie [International symposium on terminology. Attempt to define terminology] Org.: Régie de la langue française (= OLF), Québec, Canada
1976 Paris 15 to 18 June	Colloque international de terminologie - Terminolgies 76 [Internatinal symposium on terminology - Terminologies 76] Org.: Association française de terminologie (AFTERM), Paris, France Régie de la langue française (=OLF), Québec, Canada
1977 Vienna 30 and 31 August	XIIth International Congress of Linguists. Working Group: Lexicology, Lexicography and Terminology Org.: Dept. of Linguistics, University of Vienna
1977 Pointe au Pic, Québec 2 to 7 October	Colloque international de terminologie [International symposium on terminology] Groupe I: Terminologie et linguistique. Terminologie, sciences et techniques Groupe II: Terminologie et traduction. Terminologie, informatique et documentation [Group I: Terminology and linguistics.Terminology, sciences and technology] [Group II: Terminology and translation. Terminology, information and documentation] Org.: Office de la langue française (OLF), Québec, Canada
1978 Dresden 29 to 31 August	2. Internationales Kolloquium Rechnerunterstützte fachsprachliche Lexikologie [2nd International Symposium. Computer-aided terminology] Org.: Technische Universität Dresden, GDR
1978 Québec 28 to 30 August	International symposium on terminology teaching Org.: Université Laval/COMTERM/AILA/Infoterm
1979 Vienna 2 and 3 April	First international conference on terminological data banks Org.: Infoterm, Vienna, Austria

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1979 Moscow 27 to 30 November	International Symposium "Theoretical and methodological problems of terminology" Org.: AILA, Akademija Nauk SSSR, GOSSTANDART, Infoterm, VNIIKI
1980 Saarbrücken 5 to 9 November	Internationales Kolloquium zur Fachsprachenforschung und Fachsprachenlehre unter besonderer Berücksichtigung des Spanischen /International colloquium on research and teaching of LSP with special emphasis on Spanish/ Org.: AILA Commission on LSP
1982 Québec 23 to 27 May	Colloque international sur les problèmes de la définition et de la synonymie en terminologie /International symposium on the problems of definition and synonymy in terminology/ Org.: GIRSTERM/Université Laval, Québec, Canada
1982 Augsburg (FRG) 28 June to 2 July	4th International Study Conference on Classification Research "Universal Classification: subject analysis and ordering systems" Org.: FID/CR, Den Haag, Netherlands

(4) Europe

1977 Luxembourg 13 and 14 January	Workshop "Qualitative evaluation of thesauri" Org.: Information Management-Commission of European Communities (CEC), Luxembourg
1977 Luxembourg 3 to 6 May	3rd Congress on documentation systems and networks - Overcoming language barrier Org.: Information Management-Commission of European Communities (CEC), Luxembourg
1977 Vienna 26 to 28 August	Frist European Symposium on language for special purposes (LSP) Org.: Wirtschaftsuniversität Wien International Association for Applied Linguistics (AILA) Unesco ALSED/LSP Network, Copenhague, Denmark
1979 Bielefeld 24 to 26 September	2nd European Symposium on language for special purposes (LSP) Org.: AILA/Unesco ALSED
1981 Copenhagen 17 to 19 August	3rd European Symposium on language for special purposes (LSP) Org.: AILA/Unesco ALSED
1981 Luxembourg 7 to 9 July	Symposium "Lexicography in the Electronic Age" Org.: CEC, Luxembourg

(41) United Kingdom

1982 London 11 to 12 November	Translating and the computer 4: Term banks for tomorrow's world Org.: Aslib, London, U.K.
1983 Exeter 9 to 12 September	LEXETER '83. Conference on lexicography Org.: The Language Centre University of Exeter

(430.1) Federal Republic of Germany

1968 Germersheim 21 to 24 October	Kolloquium über offene terminologische Fragen /Symposium on open terminological questions7 Org.: Bundesverband der Dolmetscher und Übersetzer und FNA "Terminologie (Grundsätze und Koordination)" des DNA
1974 Frankfurt 23 to 25 October	Fachseminar Terminologie und Lexikographie /Technical seminar "Terminology and Lexicography"7 Org.: Landesverband Hessen des Bundesverbandes der Dolmetscher und Übersetzer (BDÜ)
1976 Frankfurt 30 September and 1 October	Fachtagung "Sprache im Dienst des Ingenieurs und Technikers - Probleme der Terminologiearbeit" /Meeting "Language for engineers and technicians - Problems of terminology work7 Org.: Deutsche Gesellschaft für Dokumentation (DGD) Verein Deutscher Ingenieure (VDI) DIN Deutsches Institut für Normung
1976 Düsseldorf 18 October	Sprachwissenschaft und Terminologiearbeit /Linguistics and terminology work7 Org.: Arbeitsgemeinschaft für Rationalisierung des Landes Nordrhein-Westfalen/Arbeitsgruppe Vereinheitlichung
1977 Düsseldorf 5 April	Sprachwissenschaft und Terminologiearbeit II /Linguistics and terminology work II7 Org.: Arbeitsgemeinschaft für Rationalisierung des Landes Nordrhein-Westfalen/Arbeitsgruppe Vereinheitlichung

(430.2) German Democratic Republic

1971 Dresden 6 to 8 January	Angewandte Sprachwissenschaft und fachsprachliche Ausbildung /Applied linguistics and training in special languages7 Org.: Technische Universität Dresden

(437) Czechoslovakia

1967 Bratislava 20 to 22 April	Sympózium o technicky terminologii /Symposium on technical terminology7 Org.: ČSVTS, Bratislava

1969 Prague October	Kolloquium über terminologische Fragen [Symposium on terminological questions] Org.: Institute for non-slavic languages at the Agricultural College, Prague
1971 Prague November	Kolloquium "Fachwort als Gegenstand der Terminologielehre" [Symposium "The term as object of the theory of terminology"] Org.: Institute for non-slavic languages at the Agricultural College, Prague

(46) Spain

1983 Madrid 8 to 10 November	Cursillo-coloquio sobre terminología [Course-workshop on terminology] Org.: HISPANOTERM, Madrid

(47+57) USSR

1959 Moscow 25 to 29 May	Voprosy terminologii [Questions of terminology] Org.: Academy of Sciences of the USSR Institute for Linguistics
1967 Moscow 24 to 26 May	Naučnaja konferencija po problemam gosudarstvennoj standartizacii naučnoj i tehničeskoj terminologii [Scientific conference on problems of the state standardization of scientific and technical terminology] Org.: GOSSTANDART/VNIIKI, Moscow
1967 Leningrad 30 May to 2 June	Lingvističeskie problemy naučno-tehničeskoj terminologii [Linguistic problems of scientific and technical terminology] Org.: Academy of Sciences of the USSR - Scientific Council of Lexicology and Lexicography - Committee for Scientific and Technical Terminology - Institute for Russian Language - Institute for Linguistics, Department of Leningrad
1969 Moscow 24 to 27 December	Naučny simpozium. Mesto terminologii v sisteme sovremennyh nauk [Scientific Symposium. The position of terminology in the systems of contemporary sciences] Org.: Moscow State University
1971 Moscow December	Naučny simpozium "semiotičeskie problemy jazykov nauki, terminologii i informatiki" [Scientific symposium "semiotic problems of the languages of science, of terminology and of information science"] Org.: Moscow State University

1974 Leningrad 26 to 29 March	Problematika opredelenija terminov v slovarjah raznyh tipov [The problems of defining terms in vocabularies of different types] Org.: Academy of Sciences of the USSR - Scientific Council for Lexicology and Lexicography - Committee for Scientific and Technical Terminology - Institute of Russian Language - Institute for Linguistics, Department of Leningrad
1981 Moscow 23 to 25 March	Problemy uporjadočenija terminologii v akademijah nauk sojuznyh respublik [Problems of terminology regulation in the academies of sciences of the Soviet republics] Org.: Academy of Sciences of the USSR - Committee for Scientific and Technical Terminology - Institute for Linguistics - Scientific Council for the development of national languages
1983 Moscow 29 November to 1 December	Vsesojuznaja konferencija osnovnye napravlenija rasvitia i soveršenstvovanija rabot po standartizacii naučno-tehničeskoj terminologii v XI pjatiletke [All Union Conference on main trends of developing and complementing of the work in standardization of scientific and technical terminology in the 11th five year plan] Org.: GOSSTANDART/VNIIKI

(48) Finland

1982 Vasa 16 to 26 August	Facksprag och terminologi [Special language and terminology] Org.: Vasa högskola

(485) Sweden

1976 Stockholm 22 and 23 April	Seminarium NORDTERM 1976. Terminologiskt samarbete i Norden [Seminar NORDTERM 1976. Terminological co-operation in the North] Org.: Centralen for teknisk terminologi, Finland Radet for teknisk terminologi, Norway Tekniska nomenklaturcentralen, Sweden Terminologigruppen, Denmark
1978 Stockholm 6 to 8 November	Terminologi - ettmedel för effektiv kommunikation [Terminology - a medium for effective communication] Org.: Tekniska nomenklaturcentralen

(489) Denmark

1978 Skodsborg 20 to 30 June	Nordisk terminologiekursus [Nordic terminology course] Org.: Nordterm

(64) Morocco

1982 Rabat 29 November to 3 December	2e Colloque de terminologie franco-arabe: Aménagement linguistique et développement Org.: Université Mohamed V de Rabat and Université de Tunis, Marocco

(678) Tanzania

1983 Zanzibar 2 to 17 December	Promotion and Modernization of National Languages: Theory and practice of Terminology Org.: EACROTANAL, Zanzibar

(71) Canada

1976 Ottawa 16 to 18 February	Colloque canadien sur le fondements d'une méthodologie générale de la recherche et de la normalisation en terminologie et documentation Org.: Secrétariat d'Etat, Bureau des Traductions, Ottawa
1983 Montréal 8 to 10 April	Colloque sur les problèmes et méthodes de la lexicographie terminologique Org.: Université du Québec à Montréal and GIRSTERM, Québec

(73) USA

1982 Toronto, Canada 21 to 25 June	ASTM Symposium "Terminology: The Cornerstone of Global Communications through Standards" Org.: ASTM, Philadelphia, USA

(85) Peru

1979 Trujillo 1 to 5 October	Primer Simposio International sobre "Las Barreras Linguisticas en el desarrollo de la ciencias y de la tecnologia en los paises del convenio Andres Bello" Org.: Universidad Nacional de Trujillo, departamento de idiomas y linguistica

(87) Venezuela

1983 Caracas 11 to 15 April	Primer seminario nacional de terminologia /First national seminar on terminology/ Org.: Grupo de Investigación Terminológica del Departamento de Idiomas de la Universidad Simon Bolivar, Caracas

Annex 4

International Committee for the Co-ordination of Terminological Activities

(Project approved by the 3rd FIT-Congress, 1959)

1. Object and Composition

Object: The "International Committee for the Co-ordination of Terminological Activities" shall not itself undertake terminological work. It shall, on the contrary, serve to organize internationally terminological activities by organizations and individuals to avoid, on the one hand, duplication of effort and errors in method and to facilitate, on the other hand, the initiation of important new projects.

The Committee shall receive subsidies to that effect and allocate these, pursuant to budget provisions, to specific terminological projects according to their merits and needs.

Composition: The co-ordinating Committee shall be composed of 5 to 10 individuals experienced in terminological matters; they shall be so selected as to represent (as equally as possible) the maximum number of subject fields of organizations concerned with terminology and the more important language areas.

2. Co-ordinating Functions

The co-ordinating functions which will be assumed in successive stages by the Committee shall be to:

(1) Terminological Documentation

(1.1) Prepare (or revise) and publish bibliographies on terminological subjects.

(1.2) Publish critical reviews on terminological publications, particularly in the organs of the participating organizations.

(1.3) Maintain a register of terminological projects and make this information available.

(1.4) Maintain a register of experts on terminology (including specialized translators) and make this information available.

(1.5) Serve as a repository of terminological documents and make these available in appropriate form.

(2) Support of Terminological Research

Co-ordinate investigations into the principles and methods of terminology (concepts and terms) and in lexicography (specialized dictionaries).

(3) Support of practical Work on Terminology

(3.1) Provide information on terminological questions, in particular with regard to documentation (see 1).

(3.2) Advise authorities, organizations and other agencies in the planning and implementation of terminological projects.

(3.3) Link up terminological organizations and experts and co-ordinate terminological projects; this may include holding conferences directed to this end.

(3.4) Plan terminological projects in various subject fields.

(4) Support of Standardization of Terminology

(4.1) Enlighten subject specialists and the general public on the nature and necessity of co-operative terminological activities based on scientific principles.

(4.2) Introduce terminological and lexicographic agreements (standards) into practice. (By contrast, the organization and implementation of terminological standardization shall not be a function of the co-ordinating committee).

3. Implementation of Co-ordinating Functions

3.1 **Division of Functions:** For as long as the co-ordinating committee does not have at its disposal sufficient means to maintain its own secretariat (see 3.2), the co-ordinating functions shall be divided among the participating international organizations. Each organization accepting such a function shall maintain a secretariat for that purpose.

3.2: It will also be necessary to entrust the general secretariat to the participating organizations (general correspondence, preparation of meetings, etc.).

In principle, however, every effort should be made to establish a secretariat to serve the co-ordinating committee.

When the co-ordinating committee has been provided with its own secretariat, an examination shall be made of such of the special co-ordinating functions enumerated in section 2 that might be transferred to this secretariat.

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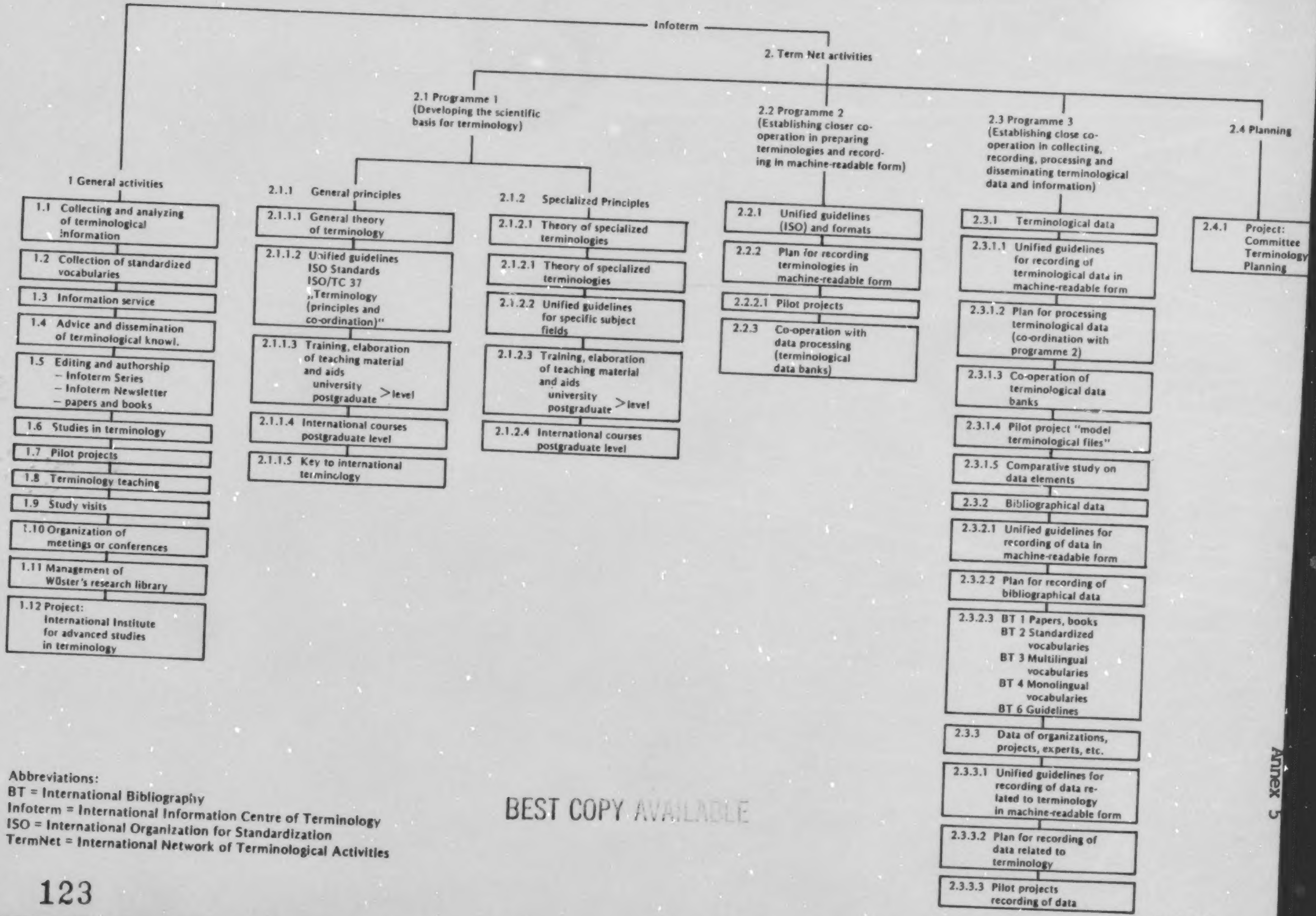
Infoterm
1 General activities
1.1 Collecting and analyzing of terminological information
1.2 Collection of standardized vocabularies
1.3 Information service
1.4 Advice and dissemination of terminological knowl.
1.5 Editing and authorship
– Infoterm Series
– Infoterm Newsletter
– papers and books
1.6 Studies in terminology
1.7 Pilot projects
1.8 Terminology teaching
1.9 Study visits
1.10 Organization of meetings or conferences
1.11 Management of Wüster's research library
1.12 Project: International Institute for advanced studies in terminology
2. Term Net activities
2.1 Programme 1 (Developing the scientific basis for terminology)
2.1.1 General principles
2.1.1.1 General theory of terminology
2.1.1.2 Unified guidelines ISO Standards ISO/TC 37 „Terminology (principles and co-ordination)"
2.1.1.3 Training, elaboration of teaching material and aids university postgraduate > level
2.1.1.4 International courses postgraduate level
2.1.1.5 Key to international terminology
2.1.2 Specialized Principles
2.1.2.1 Theory of specialized terminologies
2.1.2.1 Theory of specialized terminologies
2.1.2.2 Unified guidelines for specific subject fields
2.1.2.3 Training, elaboration of teaching material and aids university postgraduate > level
2.1.2.4 International courses postgraduate level
2.2 Programme 2 (Establishing closer co-operation in preparing terminologies and recording in machine-readable form)
2.2.1 Unified guidelines (ISO) and formats
2.2.2 Plan for recording terminologies in machine-readable form
2.2.2.1 Pilot projects
2.2.3 Co-operation with data processing (terminological data banks)
2.3 Programme 3 (Establishing close co-operation in collecting, recording, processing and disseminating terminological data and information)
2.3.1 Terminological data
2.3.1.1 Unified guidelines for recording of terminological data in machine-readable form
2.3.1.2 Plan for processing terminological data (co-ordination with programme 2)
2.3.1.3 Co-operation of terminological data banks
2.3.1.4 Pilot project "model terminological files"
2.3.1.5 Comparative study on data elements
2.3.2 Bibliographical data
2.3.2.1 Unified guidelines for recording of data in machine-readable form
2.3.2.2 Plan for recording of bibliographical data
2.3.2.3 BT 1 Papers, books
BT 2 Standardized vocabularies
BT 3 Multilingual vocabularies
BT 4 Monolingual vocabularies
BT 6 Guidelines
2.3.3 Data of organizations, projects, experts, etc.
2.3.3.1 Unified guidelines for recording of data related to terminology in machine-readable form
2.3.3.2 Plan for recording of data related to terminology
2.3.3.3 Pilot projects recording of data
2.4 Planning
2.4.1 Project: Committee Terminology Planning

Abbreviations:
BT = International Bibliography
Infoterm = International Information Centre of Terminology
ISO = International Organization for Standardization
TermNet = International Network of Terminological Activities

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PART 2

FUNDAMENTALS OF THE GENERAL THEORY OF TERMINOLOGY

2 FUNDAMENTALS OF THE GENERAL THEORY OF TERMINOLOGY

This part intends to show - in form of an overview - the connections of the GTT to other disciplines. It is not a study of systematic nature, but it should assist to locate the GTT within the framework of sciences.

2.1 GENERAL

The General Theory of Terminology (GTT) is a constituent part of terminology science. This science has been developed now for some decades. It is reflected by several scientific approaches and materializes in form of three classical schools - the Vienna, Prague and Soviet schools of terminology - as well as in the basic terminological research as carried out by a number of research institutions in the world, see 1.09. The three classical schools of terminology give impulses to many institutions of the world.

At the moment three main approaches to general research in terminology can be found

- the subject fields oriented approach
- the philosophy oriented approach
- the linguistics oriented approach

The subject fields oriented approach places the concept and its relationships to other neighbouring concepts as well as the correspondence concept-term and the assignment of terms to concepts in the centre of its reflections. It includes the application of terminography (see Part 4) in the place of lexicography, i.e. the individual vocabulary items are arranged in systematic order not in alphabetical order. The main feature is the interdisciplinarity of this field of knowledge.

The philosophy oriented approach is very similar to that of the subject fields oriented approach. It stresses the classing of concepts into philosophical categories /1/. The efforts are mainly directed to a founding of classification theories /2/. Terminology and documentation science have one field of common study, i.e. the classification theory.

The linguistics oriented approach is based on the idea that terminologies being sub-sets of the lexicon of a special language are sublanguages of individual languages. It applies linguistic tools to terminological phenomena including lexicography.

In the following the fundamentals of Wüster's General Theory of Terminology (GTT) [3] are described. The GTT is subject fields oriented. It is a border field between linguistics, logic, ontology information science and the individual subject fields [4].

2.2 THE GENERAL THEORY OF TERMINOLOGY

The GTT was developed by the late Prof. Dr. Eugen Wüster who is also the creator of the Vienna School of Terminology The GTT is a scientific discipline which was developed from practice for practical purposes. It provides the scientific basis for terminology work, i.e. for the application of terminological principles and methods, which should enable national and international organizations to carry out unified terminology work in the most efficient way. Wüster summarized his studies of single terminological issues in a manuscript which served as the script for his lecture on "Einführung in die Terminologielehre und Terminologische Lexikographie [The Introduction to the Theory of Terminology and Terminological Lexicography] [5], which he delivered as honorary professor at the department of linguistics at the University of Vienna from 1972 to 1974. In addition a voluminous definition vocabulary in systematic order which comprises the concepts of the theory and practice of terminology has been elaborated by him from 1955 to his death [6].

Wüster makes a difference between the GTT and the Special Theories of Terminology [7]. The Special Theories of Terminology deal with the terminological laws pertaining to specific disciplines or individual languages.

In the following the relations of the GTT to other disciplines is described briefly. A detailed scientific study on these relations to individual other disciplines is urgently needed. Picht investigated some of the connections of the GTT to other disciplines [8].

2.21 The differences between the GTT and the theories dealing with common language

The GTT [9] has three specific characteristics in regard to the state of the language:

(1) Any terminology work starts with concepts. It aims at the strict delimitation of concepts. The sphere of concepts is independent of the sphere of terms. While terminologists talk about concepts, linguists talk about the meaning of words. In terminology a unit of denomination consists of a term which is assigned to a concept. The concept is the meaning of the term. Most of the linguists consider the word as an inseparable unit of word contents and word form. In linguistics one has to consider connotations of words, which do not exist for terms.

(2) Only the terms of concepts, i.e. the terminologies, are of relevance to the terminologist, not the rules of inflections and the syntax. The rules of grammar are taken from common language.

(3) The terminological view of language is a synchronic one, i.e. for terminology the present meanings of terms are important. For terminology the system of concepts is what matters in language.

With respect to the development of languages there are also certain peculiarities to be mentioned:

(1) Terminologies are deliberate creations. In common language the standard is the usage of the language. This standard is called descriptive standard. In terminology the free play of language would lead to a chaos. For this reason, terminologists have begun to agree upon unified concepts and terms. This kind of agreement is also called standard or more precisely, prescriptive standard. This agreement is usually endorsed by an authority (standards body, professional association, etc.), which recommends or prescribes the standard.

The standardization of terminology can be considered as unification by selection of terms or creation of new terms. The selection of terms or the creation of new terms require beforehand an evaluation of terms and term elements in order to achieve an optimal correspondence concept-term.

(2) International outlook on language. - The standardization of single terms requires unified translinguistic guidelines, i.e. terminological and terminographical principles. With the preparation of such guidelines the Technical Committee 37 "Terminology (principles and co-ordination)" of the International Organization for Standardi-

zation (ISO) is occupied, see Part 1 051.1.
(3) Preference of the written form to the phonic form.

Further differences:
The above mentioned peculiarities in regard to the state of the language have certain consequences for the presentation of terms in vocabularies. Since all concepts of a subject field under investigation have to be viewed as parts of a system of concepts, i.e. in relationship to other concepts, the items of a special vocabulary have to be arranged in systematic order Only this arrangement makes a comparison of two or more languages possible provided that each concept is defined.

A specific feature of GTT is its inter- and transdisciplinarity, i.e. the GTT is on the one hand an interdisciplinary field of linguistics, logics, ontology, information science and of the individual special fields such as biology, engineering, physics, etc; on the other hand any field of knowledge and any profession needs the GTT for the development of its own terminologies. In addition specific rules for the terminology of individual special fields were developed, which make up the Special Theory of Terminology of the special field concerned.

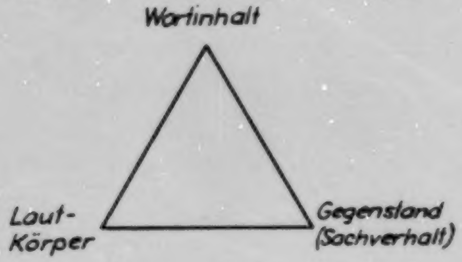
Since the conceptual content of the special fields like engineering, chemistry, biology, economics form the essence of the individual terminologies the GTT considers the terminology work as an activity of the subject specialists concerned, which requires the participation of professional terminologists, or of language specialists.

In linguistics, logics, ontology, etc. exist various different theories. Therefore it is necessary to examine constantly the new developments in those fields with respect to their applicability in the GTT. Consequently the GTT is a field of research which has to take into account the results of research of other disciplines, which are of relevance to GTT, as well as the expertise of practical terminology work.

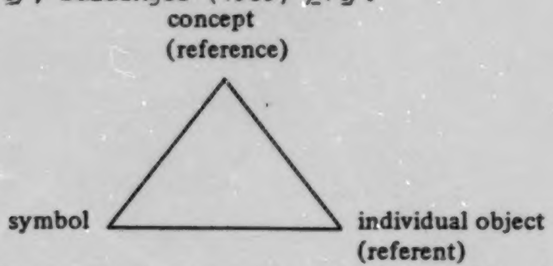
Wüster has laid the foundations of the GTT which are to serve as a basis for further research. This research is expected to be carried out at universities.

2.22 Wüster's term model

The semantic triangle (see figure 1) which was introduced by Gomperz (1908) was later used by many other authors with different designations at the vertices. These authors were: Dittrich (1913) [10], Ogden (1923) [11], Ullmann (1952) [12], Knobloch (1956) [13], Baldinger (1959) [14].


Wortinhalt
Laut-Körper
Gegenstand (Sachverhalt)

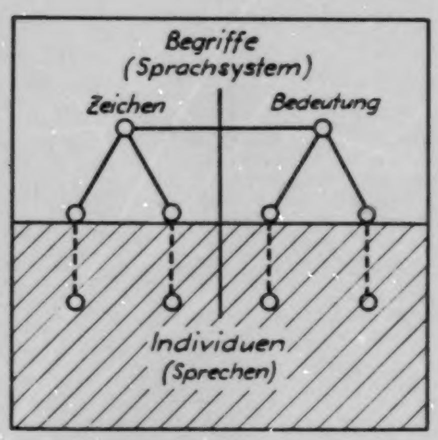
Dreiteiliges Wortmodell [4]


concept (reference)
symbol
individual object (referent)

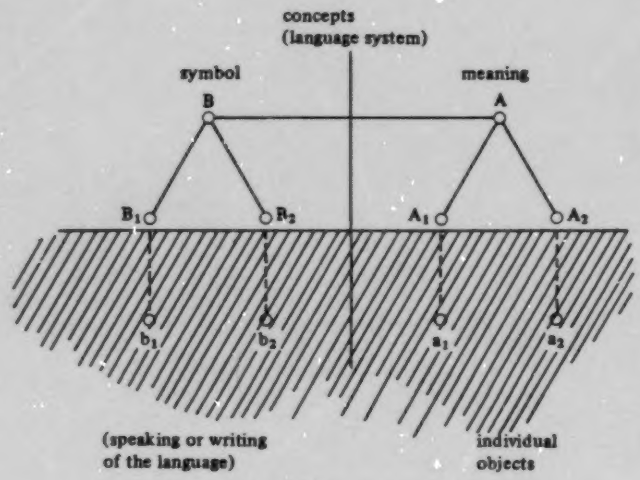
(Translation by H. Felber 1980; in brackets: terms used by Ogden 1923)

On the basis of this triangle and de Saussure's theories Wüster designed a term model composed of four fields (see Figure 2). There are only two basic relations in these four fields, namely, individual object-concept and symbol-meaning.

Wüster's term model [15]


Begriffe (Sprachsystem)
Zeichen
Bedeutung
Individuen (Sprechen)

Vierteiliges Wortmodell [15]


concepts (language system)
symbol
meaning
B
A
B_1
B_2
A_1
A_2
b_1
b_2
a_1
a_2
(speaking or writing of the language)
individual objects

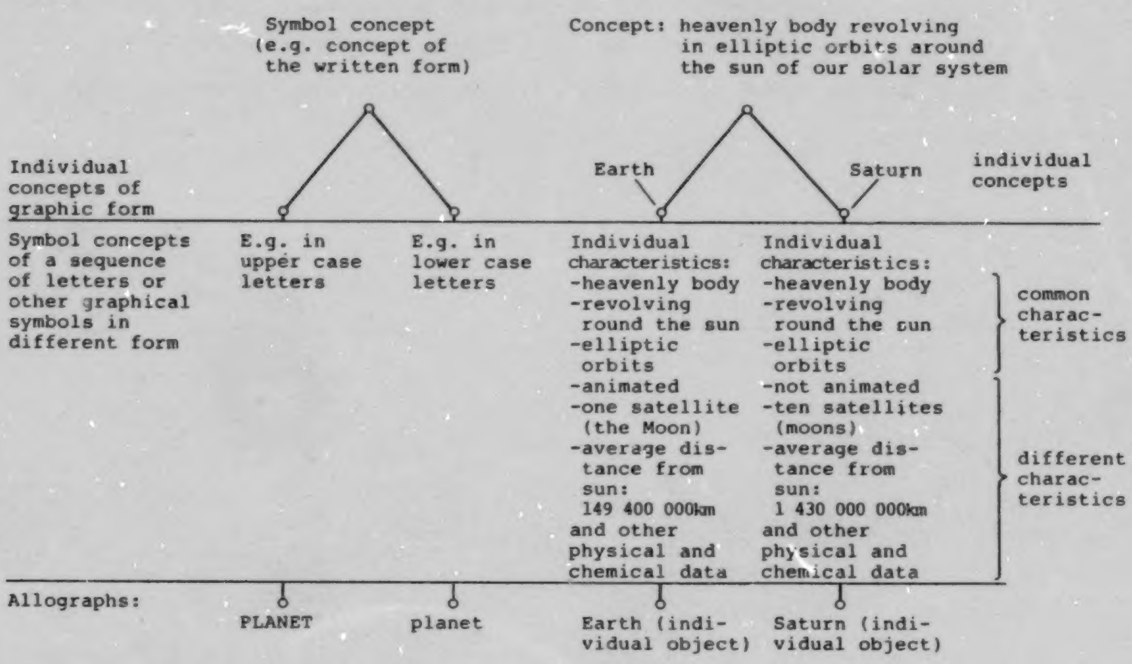
(Translation by H. Felber 1980)

Figure 2

a_1, a_2 ... individual objects with a certain number of common properties

A_1	individual concept i.e. a set of characteristics expressing properties of the individual object a_1
A_2	individual concept, i.e. a set of characteristics expressing properties of the individual object a_2
A	concept abstracted from the individual concepts A_1, A_2 ... This concept is a set of characteristics common to A_1, A_2 ...
B	concept of a linguistic symbol. This concept consists of a set of characteristics characterizing its configuration or its phonic form. B is assigned to A, which is the meaning of B.
B_1, B_2 ...	individual concepts of a phonic or written form
b_1, b_2 ...	phonic or written forms (representations of concept B)

Example:


Symbol concept (e.g. concept of the written form)
Concept: heavenly body revolving in elliptic orbits around the sun of our solar system
Individual concepts of graphic form
Earth
Saturn
individual concepts
Symbol concepts of a sequence of letters or other graphical symbols in different form
E.g. in upper case letters
E.g. in lower case letters
Individual characteristics: -heavenly body -revolving round the sun -elliptic orbits -animated -one satellite (the Moon) -average distance from sun: 149 400 000km and other physical and chemical data
Individual characteristics: -heavenly body -revolving round the sun -elliptic orbits -not animated -ten satellites (moons) -average distance from sun: 1 430 000 000km and other physical and chemical data
common characteristics
different characteristics
Allographs:
PLANET
planet
Earth (individual object)
Saturn (individual object)

The upper half of the scheme represents the world of concepts corresponding to the language system. The lower half of the scheme depicts individual objects consisting on the one hand of the individual objects a_1, a_2 ... of the extralinguistic reality and on the other hand of a number of individual representations b_1, b_2 ..., i.e. realizations of a symbol concept B assigned to the concept A, representing the common characteristics of the individual objects a_1, a_2 ...

In this scheme a difference between phonem B and allophon b is made. The phonem is a concept, the allophon is one of the great many of realisations of this concept. The allophon is an individual object. The same holds for the graphem as concept and the allographs as individual spelling variants.

2.3 THE RELATIONS OF THE GTT TO OTHER DISCIPLINES

2.31 Relation to ontology

In reality concepts do not exist. Man lives in a world of objects which exist more or less independently of him as thinking being. Each object is an non-recurring individual. Individual objects can be material, such as a house, an aeroplane, etc. But they can also be immaterial, such as yesterday's thunderstorm which is being recalled. Individual objects are designated by proper names, for instance, the river "Thames", or by terms which are immediately assigned to individual concepts.

The Greek philosopher Aristotle was the first to make a difference between two kinds of associations of ideas, namely those based on similarity (relationships of abstraction or logical relationships) and those based on contiguity (ontological relationships), i.e. contact in space or time. Between individual objects ontological relationships can exist, see Part 3.42.

2.32 Relation to logics

There are some elements of classical logic which are applicable to the GTT.

2.321 Concepts

In the GTT the concept "concept" and its relationship to other concepts have a central position. They are the cornerstones of the GTT and the starting point of any terminology work. First investigations into the nature of concepts can be traced back to ancient Greek philosophical schools.

In Phaidron (theory of ideas) and in Thaitetos (on knowledge), Platon raised questions which can be regarded as beginnings of a theory of concepts and of epistemology.

In six treatises of his Organon Aristotle, who was Platon's disciple, laid down the fundamentals of logic, which he called "Analytik", i.e. the basic laws of concept, characteristics, reasoning, inference, definition, etc.

A comprehensive study on the concept "concept" and its development and interpretation was made by Horn in the thirties /16/. A more recent investigation was made by Dahlberg /17/.

The GTT follows a very practical approach. The concept is defined as an element of thinking, see 3.3. It is a mental construct representing a material or immaterial individual object. The concept consists of an aggregate of characteristics which we can cognize as being common to a number of individual objects, and which we use as means for mental ordering and for communication. The characteristics themselves are concepts, too.

2.322 Theory of concepts (conceptology)

The conceptology which is a basic discipline of logic, forms together with the theory of designation two important columns of the GTT.

Conceptology is similar to semantics /18/, which is a discipline of linguistics. It is, however, only similar. This has to be stressed. Conceptology is based on the concept, which exists independently of the term, the meaning of which it is. A term is assigned deliberately to a concept after due consideration whether this term corresponds to the concept in question. The assignment precedes an evaluation of the linguistic symbol to be assigned. This symbol can be an existing term or a term to be created from the characteristics being integral constituents of the concept in question. Semantics investigate the meanings of a word, which do not exist independently of the word, see 2.352.

Semantics presupposes the existence of the linguistic symbol "word". This should be always kept in mind. Unfortunately the term semantics is used presently very loosely. Conceptology is characterized by investigations into the nature of concepts, their relationships and the representation of concepts in systems, see 3.3 to 3.5.

The relationships of concepts were already recognized by the Greek philosopher Aristotle /19/. The logical relationships of superordination, subordination and co-ordination were explictly described by the German philosopher I. Kant in his well known work "Kritik der reinen Vernunft" /20/.

The first to investigate system of concepts was not a philosopher but the biologist Durand de Gros. This was in 1899. Extensive studies on meaning were carried out in 1892 by Frege /21/.

2.323 Symbolization of relationships of concepts

In mathematics and mathematical logics a number of symbols are used. The GTT adopted those in use for the logical relationships such as = ~, >, <, ∧, ∨ etc. Wűster in addition in analogy to these symbols invented non-existing symbols for ontological relationships such as ≻— , —≺ , Y etc. These symbols are used in Part 3.

2.33 Relation to epistemology

The problem how the human mind cognizes individual objects and forms concepts on them by abstraction plays an eminent role in the GTT. This problem is subject of investigation of epistemology. The beginnings of this investigation can be traced back to the ancient Greek philosophers.

As was pointed out by Bochenski /22/, epistemology is of basic relevance to terminology. Between the two disciplines there is a constant interchange of ideas. The following paragraphs summarized the findings of Bochenski.

Every cognition is the result of a psychic process, which leads to knowlegde. This process is no state but an activity of a subject. Cognition is, in the same way as knowledge, something psychic, attached to the individual. There is no objective, detached cognition possible.

Cognition to its full extent results in a reasoning by which an objective proposition is affirmed or negated.

The respective "lower" process of cognition, which leads to the formation of a subjective concept and to the "grasping" of an objective concept, is to be called "comprehending". Thinking has to be distinguished from cognizing. Thinking is to be conceived as the mental movement from one object to the next. Thinking aims at the creation of knowledge.

In order to communicate our concepts and propositions to others and to facilitate the thinking for ourselves, we use linguistic signs, either of written or oral nature which consist of words or similar symbols. Language does not depict the entity directly but depicts objective concepts and propositions. We do not express the entity as it is, but in such a way as we think it is. Language, however, does not always picture the objective concepts and propositions adequately. Thus it can happen that a linguistic symbol depicts several of such objective entities (polysemy) or vice versa that several symbols depict the same entity (synonymy). Since language plays an eminent role in human cognizing (especially because cognizing is socially conditioned, i.e. that what has been cognized by others becomes known through language), language analysis and interpreting is one of the most important methods of cognizing. A sign for an objective concept is to be called "linguistic symbol", a sign of an objective proposition is to be called "predication".

2.34 Relation to linguistics

The difference between the GTT and the theories dealing with the common language are described in 2.21.

The most important link to linguistics is that the term is a linguistic symbol, which is formed by words or word elements. In linguistics, the modern view of language as a system was introduced by Ferdinand de Saussure /23/, who delivered lectures on linguistics from 1906 to 1911 at the University of Geneva. He pointed out the difference between the language as system of language (langue) and the speaking or writing of this language (parole). This finding was included in Wüster's four field-term model, which is an enlargement of the word model, see 2.22. In the thirties Weisgerber and later Trier presented their ideas of structured lexicology in linguistics. They spoke of "Wortfelder" /word fields/.

Modern semanticians recognize the existence of a certain hierarchical structure in the vocabulary such as hyponomy /24/. This is in analogy to the conceptology of the GTT. This hierarchical structure in the vocabulary of common language is mostly either prescientific or reflects an outdated scientific system.

Trubetzkoy demonstrated that there is a difference between phoneme and allophone on the one had as well as between grapheme and allograph on the other hand. This means that the allophones as well as the allographs are individual objects (see 2.22 - Wüster's term model).

Lexicography has a long tradition. Those parts, which were relevant for the GTT were carefully studied by Wüster. They were combined into the terminological lexicography /25/, which is now called "terminography", see 4. The terminographic approach is characterized by the systematic order of terms. In isolated cases ideological dictionaries can be found also in common languages (Roget's Thesaurus (1852), Dornseiff (1934), Casares (1942), Wartburg (1952)). In the recent years great progress was reached by the application of the computer for linguistic data.

2.341 Applied linguistics

The GTT has a close link to applied linguistics and to special language, which has become a broad field of investigation by linguists, language teachers and subject specialists in the last two decades /25/. There were symposia on special languages in Vienna in 1975, in Bielefeld in 1979 and in Eindhoven in 1982 /26/.

Special language is to be understood as the totality of all linguistic means used in a field defined by a subject of a profession.

While terminology concentrates on the terminological unit, which is a concept represented by a term, special language shifts from the traditional lexical units to larger communicative coherences, which are the basis for the constitution of total texts /27/.

In special language, the terminological or the sublanguage approach exist. The two approaches are complementary of each other. For the sublanguage approach, the terminology is the main bearer of information of the individual special languages. It is the totality of those special lexemes, the meanings of which are the concepts forming a system in the individual subject field in question. The terminology is a sub-set of the lexicon of a special language, which is a part of the subsystem of the "lexicon" of the common language".

The scientific investigations comprise: lexical, syntactical, grammatical and stylistic investigations of specialized texts, formation of terminological lexical units, syntagmas, phrases and the structure of specialized texts, classification of texts (text sorts), theory of translation, etc. A new field of investigation is the linguistic of specialized texts /28/.

2.35 Relation to communication theory

Communication has two manifestations: the contents of communication units and the external form of communication units. In special language concepts and lexems are elements of the contents of communication units; linguistic symbols and groups of linguistic symbols are the external form of communication units.

2.351 The contents

The contents of communication in special languages is determined by concepts. The individual concept has to be seen in connection with the related concepts of the system. A definition delimits concepts from their neighbouring concepts. Term and concept are connected deliberately. In common language fields of meanings are attached to a word. Word and meanings form an inseparable unit.

2.352 The external form

In communication the three most important types of linguistic symbols are:
(1) the word
(2) the term
(3) the thesaurus word.

The word is a linguistic symbol to which as contents mostly a multiplicity of different meanings with no distinct demarcation (in contrast to the concept), sometimes blurred transitions from one meaning to the others, and of numerous shades of meanings is attached. The specific shade of meaning in a given situation is defined by the context, in which the word is used. The word is dependent on context.

The term is a linguistic symbol which is assigned to one or sometimes to more concepts. The concept is the meaning of the term. A term can be a word or a word group, a letter or graphic symbol, an abbreviation, an acronym, a notation, etc. The concepts exist independently from terms.

The term owing to its assignment to a concept is dependent on the system of concepts to which this concept belongs. The term retains the particular meaning also within any context, i.e. the meaning which the term has in the system of concepts.

The thesaurus word is a linguistic symbol used for indexing and retrieval of information. It can be a word, a term or a name. Mostly it is a term, which functions as descriptor or non-descriptor.

The descriptor has a meaning which is dependent on the information system concerned.

The word, the term and the thesaurus word are described in 3.711.

2.36 Relation to information and documentation science

In information and documentation small units, called data, are used for the description of the form or the content of a document. The form of the document is described by bibliographical data elements, the content of the document is described by indexing terms such as key words, descriptors etc., which serve the retrieval of information. The bibliographic reference in a catalogue is a representative of a certain paper or book.

In analogy the GTT breaks down the information on concepts in terminological data and associated data which are listed in categories in terminological records (see 4.05 and 4.112). For the processing of terminological data by computer a specific software is necessary.

The computerized terminography, see 4.11, is at the same time a field of GTT and of information and documentation. Therefore a careful study of the advances of information science, documentation practice and data processing with respect to their applicability in the GTT is necessary. Thus a closer co-operation between the GTT and the information and documentation is necessary.

2.37 Relation to classification theory

Classification schemes are used for many purposes such as the:

- ordering of scientific concepts
- ordering of publications
- ordering of terms in dictionaries by subject groups

The classification theory is a branch of knowledge which is of equal relevance both to the GTT and documentation. According to Wüster two types of classification exist: the concept classification and the subject classification [29] [30]. "Subject" is to be understood as a matter treated in a document. The subject itself represented by a term is also a concept. Wüster explains the differences between these two types of classifications [31] as follows: In concept systems the relationships of the members consist either between the intensions of concepts or between the individuals themselves which are represented by concepts. The latter is an indirect concept relationship. In subject systems, however, the relationships existing between the classification members (subjects) concern the occurrence of subjects. For this reason there is more liberty in the construction of a system of subjects than in the construction of a system of concepts. A linkage of concepts leads to a new concept (see 3.412.3), a linkage of subjects, (see 3.444), does not. An example of it is the linkage of subjects in post-co-ordinate indexing.

2.38 Relation to computer science

Since the studies in artificial intelligence and the establishment of expert systems have to deal with concepts, systems of concepts, concept linking, conceptual mapping of reality etc., a stronger affinity between the GTT and computer science is to be expected in the near future.

In the design of expert systems conceptology, i.e. conceptual mapping of reality plays an important role. Therefore it is to be expected that the GTT will increasingly contribute to computer science. Projects in Japan and the USA are dedicated to the development of computers of the fifth generation. The European project "ESPRIT" /32/ of the Commission of European Communities has the overall aim to provide the European information technology industry with the technology base to become competitive with Japan and the USA. Within this framework extended research is necessary for artificial intelligence, advanced information processing using rules and inferences for the creation of new knowledge from existing data, automation of cognition and reasoning processes, information and knowledge engineering, expert systems and knowledge banks and others. This research includes also basic research in conceptology, classification theory, structuring of knowledge etc.

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PART 3

TERMINOLOGICAL PRINCIPLES

3 TERMINOLOGICAL PRINCIPLES

Terminological principles and methods /1/ /2/ /3/ are the basis for the unification of terminology work. They concern the analysis of concepts, the determination of their intension, the investigation of relationships of concepts, the design of systems of concepts, of tables of concepts, the description of concepts (definition), the assignment concept - designation (terms, symbol etc.) or vice versa, selection of adequate words or word elements for the formation of terms, creation of correct new terms etc. The part dealing with concepts applies to any language. The part dealing with designations (terms, symbols etc.) applies to Indo-European languages in general, but in some cases to the English language only. For languages which are not Indo-European it refers to only one pattern of linguistic symbols. A number of guidelines and standards of various national and international organizations exist. A bibliography of these guidelines and standards is given in Part 1-Annex 2.

3.1 GOVERNING PRINCIPLES

3.11 Choice between conflicting principles

A term has to meet a number of requirements (see 3.78). When applying terminological principles, it should be kept in mind that these principles might be in conflict with each other. In such a case a decision has to be made on which principle is to be given priority.

Example: The conflicting principles that a term has to be both precise and concise. (See below under "language economy".)

3.12 Language economy

Language economy should be a governing principle, i.e. in forming a new term, a greater accuracy of expression very often involves less ease in speaking and understanding. Hence, one should not be more precise than the situation requires.

3.13 Established usage

The established usage should not be changed without cogent reasons.

3.2 INDIVIDUAL OBJECTS

Human beings are surrounded by a world of objects which exist more or less independently of them as a thinking entity. Such an object which is a non-recurring individual is called in logic individual object or individual. The individual object can be a phenomenon of the outer world, such as a certain house, an aeroplane etc. or a phenomenon of the inner world such as the physical or psychic pain experienced by a human being at a certain moment, a certain mental picture and the like. The linguistic symbols for individual objects are mostly proper names. The linguistic symbols in special languages, however, are to a large extent designations such as terms which are assigned to concepts.

3.3 CONCEPTS

Concepts are mental representations of individual objects. A concept may represent only one individual object or - by abstraction - comprise a set of individual objects having certain qualities in common. It serves as a means for mental ordering (classification) and with the aid of a linguistic symbol (term, letter, graphical symbol) for communication. The concept is therefore an element of thinking.

Concepts may be the mental representation not only of beings or things (as expressed by nouns), but, in a wider sense, also of qualities (as expressed by adjectives or nouns), of actions (as expressed by verbs or nouns), and even of locations, situations or relations (as expressed by adverbs, prepositions, conjunctions or nouns).

Furthermore a concept may arise from the combination of other concepts, even without regard to reality. The number of concepts (represented by terms) which may be combined to form a new concept (term) is limited by the fact that in a proposition a concept can only be either subject or predicate, but not comprise both.

Example: The concepts expressed by the terms Socrates, Greece; man, hammer, cross-pane hammer; round, roundness, magnetic permeability; to revolve, revolution, number of revolutions per unit of time; space, force, square root; above, in front of, while; centaur, Neptune (the planet, as already known by calculatin before its discovery), ekasilicon (i.e. the chemical element predicted by Mendeleef in his periodic classification, afterwards named Germanium). /4/

It should be kept in mind that any terminology work should be based on concepts and not on terms.

3.31 Intension

The aggregate of the characteristics of a concept constitutes its intension.

Example: The intension of "aeroplane" comprises the following characteristics:
- heavier-than-air aircraft
- power driven
- supporting surfaces, which remain fixed under a given condition of flight

3.32 Extension

The aggregate of all subordinate concepts (species) on the same level of abstraction or of all individual objects which belong to the concept in question constitutes the extension of a given concept. In the case of the aggregate of individual objects the extension is called "class".

Example: The extension of a "heavaier-than-air aircraft": aeroplane, glider, kite, rotorcraft, ornithopter

3.33 Composite

Corresponding to the extension of a concept there is the composite determined by the contiguity of individual objects in space (see 3.421). The composite is the aggregate of the parts which constitute a whole.

3.34 Characteristics

A characteristic is an element of a concept which serves to describe or identify a certain quality of an individual object. The characteristic itself is also a concept.

Characteristics are used for the comparison of concepts, the classification of concepts, the formulation of the definition of concepts and the forming of terms assigned to concepts.
Determining characteristics are used for the delimination of a concept from its neighbouring concepts in a horizontal series of concepts (see 3.412.2 and 3.422.2) and for forming a species from its genus. If they are used for the construction of a system of concepts, i.e. a concept classification, they are called classifying characteristics. Depending on the structure of the given subject field specific characteristics are being chosen for classification purposes. In this case the characteristics belong to a definite type of characteristics. The choice of appropriate classifying characteristics in science, technology and economics is of particular importance since this affects day-to-day practice.

3.341 Classification of characteristics

From a practical point of view characteristics can be classified in two categories:

(1) intrinsic (= inherent) characteristics, especially those of design (shape and size), material, colour etc.

Example: hollow ground (saw)
circular (saw)
wooden (table)
red (light)

(2) extrinsic characteristics
  (2.1) characteristics of purpose (application, functioning, performance, location and positioning in the assembly)

Examples: (saw) for smooth cutting
high speed (memory)
rear (wheel)
test (tube)

(2.2) characteristics of origin - (method of manufacture; discoverer; describer; inventor; producer; country of origin; supplier)

Examples: Bessemer converter
Euclidean geometry
Carrara marble
Ford T model

Characteritics can be simple or complex. Simple characteristics refer only to one property of an individual object such as "circular". Complex characteristics can be a combination of two or more characteristics such as "hollow ground".

Any concept has a definite place in a certain system of concepts. The arbitrary selection of a type of characteristics as ordering (classification) elements for the division of concepts is the reason for different systems of concepts in individual subject fields. From the point of view of practice these different systems of concepts may be justified.

3.342 Equivalent characteristics

Sometimes it happens that two or more characteristics are equivalent. They are different characteristics which nevertheless may be substituted for each other in a given term without modifying the overall meaning of the term in question.

Example: The characteristics "equilateral (= having all the sides equal)" and "equiangular (= having all the angles equal)" are interchangeable in connection with the concept "triangle", i.e. equilateral [= equiangular] triangle.

3.342.1 Order of preference of characteristics

It is recommended that consideration be given to the order of the three

classes of characteristics mentioned in 3.341 (1), (2.1) and (2.2) and that among equivalent characteristics preference be given to that which comes first in this order.
Reason why this order of preference should be observed:
Intrinsic characteristics are more convenient than extrinsic characteristics because they can be ascertained by inspection only because they are self-sufficient. A more detailed knowledge as to the purpose or to the origin, is not required.

Purpose (2.1) offers better characteristics than origin (2.2), because it generally relates to the essence of a concept, whereas the origin, for instance the inventor, is not connected with the nature of the object. The purpose has the drawback that it is subject to changes without there being a change of intrinsic chararcteristics.

Origin (2.2), as a characteristic, also has a drawback if described by the name of a person, a legal entity or a geographical location. It is open to doubt whether the indication of origin concerns the product itself or merely the method of manufacture, e.g.: champagne, cognac

3.343 Non-equivalent characteristics

As a rule for a division of concepts only characteristics and types of characteristics exist which are not equivalent.
They create different systems of concepts, which may be all justified.

Example: gaskets can be divided according to their:
- form (ringshaped, discoid)
- material (leather, rubber, paper, etc.)
- production (cut, pressed, cast, etc.)

Form, material and production are types of characteristics.

3.343.1 Independent and dependent characteristics

Non-equivalent characteristics may be independent or dependent within a logical vertical series of concepts (see 3.412.1).

(1) Independent characteristics may follow each other on different levels

of a vertical series of concepts and be combined arbitrarily with each other.

Example: The characteristics "transatlantic" and "charter" in "transatlantic charter flight" are independent of each other.

1st level flight
2nd level either: transatlantic flight or: charter flight
3rd level transatlantic charter flight

(2) Dependent characteristics require that the superordinated characteristic has to precede the subordinated one in a vertical series of concepts.

Example: The concept grinding machine is hierarchically dependent on the concept machine tool since the specific characteristic grinding is subordinated to the general characteristic mechanical machining with a tool.

3.4 RELATIONSHIPS BETWEEN CONCEPTS [6] [7] [8]

Due to the fact that concepts are composed of characteristics, they have direct relationships to other concepts, which have the same characteristics in their intensions. Concepts have also indirect relationships to other concepts, if the individual objects, which they represent are contiguous (i.e. are neighbouring in space or follow one another in time).
A subject field or a subsection of a field is only mentally accessible, if the conceptual field is structured. A structured conceptual field is called system of concepts. In such a system of concepts the individual concept reveals its relationships to other concepts. When comparing different concepts with each other one can find the following types of relationships (classified by Wüster):

(1) Logical relationships
(2) Ontological relationships
    (2.1) Partitive relationships
    (2.2) Relationships of succession
    (2.3) Relationships of material-product
(3) Relationships of effect
    (3.1) Causality

(3.2) Tooling
(3.3) Descent
(3.3.1) Genealogic descent
(3.3.2) Ontogenetic descent
(3.3.3) Descent between stages of substances

Symbols used for logical and ontological relationships

= equivalent (ISO 1951)
≠ different meaning (ISO 1951)
≈ similar meaning (ISO 1951)
× intersection (ISO 1951)
≻≺ object partly coinciding with another object (ISO 1951)
> less than (ISO 1951) = smaller intension
< greater than (ISO 1951) = larger intension
≻- part (ISO 1951)
-≺ whole (ISO 1951)
‖ co-ordinated concept (logical relationship)
‖- co-ordinated individual object (relationship whole-part)

3.41 Logical relationships

The logical relationships between concepts are relationships of similarity. They are also called generic or abstract relationships.

3.411 Logical relationships between two concepts

When comparing two concepts in regard to their similarity, it becomes obvious that they have a certain part of their intension in common, i.e. they have certain characteristics in common.

Such a comparison reveals four types of relationships:
- logical subordination
- logical intersection
- logical co-ordination
- logical diagonal relationship

3.411.1 Logical subordination (vertical relationship)

If one concept has all characteristics of the other one and at least one additional characteristic, this concept is said to be a species of the other one, the genus. In logical superordination one concept (the genus) has one or more characteristics less than the other one (species).

superordination: genus
subordination: species

graphic symbol > : concept 1 > concept 2
letter symbol BG: BG concept 1
letter symbol NG: NG concept 2
BG = Broader Concept Generic
NG = Narrower Concept Generic

Examples: A vehicle is the genus of aircraft
vehicle > aircraft
A seacraft is a species of vehicle
seacraft < vehicle

3.411.2 Logical intersection

If two concepts are compared whose intensions are only partially identical (not all characteristics are the same) they are to be considered as intersecting concepts.

graphic symbol × : concept 1 × concept 2
letter symbol IGR: concept 1 IGR concept 2
IGR = Intersecting Generic Relationship

Example: teaching × instruction

3.411.3 Logical co-ordination (horizontal relationship)

If two concepts compared have the same intension and at least one more characteristic each which belongs to the same type of characteristics, i.e. if the two concepts are subordinate to the same genus, they are called co-ordinate concepts.

graphic symbol || : concept 1 || concept 2
letter symbol HGR: concept 1 HGR concept 2
HGR = Horizontal Generic Relationship

Example: seacraft is co-ordinated to aircraft, and both are subordinated to vehicle
aircraft || seacraft

3.411.4 Logical diagonal relationship

If two species of a common genus are related neither through subordination nor through co-ordination, they are in diagonal relationship.

graphic symbol / : concept 1 / concept 2
graphic symbol \ : concept 3 \ concept 4
letter symbol DGR^{+}: concept 1 DGR^{+} concept 2
letter symbol DGR^{-}: concept 3 DGR^{-} concept 4
DGR = Diagonal Generic Relationship

Example: balloon / space vehicle
seacraft \ aeroplane

3.412 Logical relationships between three and more concepts

If three or more concepts are to be compared in regard to their similarity, two different possibilities exist, which depend on whether there is subordination at the same time or not.

It quite often occurs that among all concepts compared only subordination or only co-ordination exists. The concepts form then either a logical vertical series or a logical horizontal series.

3.412.1 Logical vertical series

In case of subordination the concepts form a logical vertical series.

vertical series: concept 1
concept 2 (< concept 1)
concept 3 (< concept 2)

Example: machine
machine tool
grinding machine

3.412.2 Logical horizontal series

In case of co-ordination the concepts form a logical horizontal series.

horizontal series: concept 1   concept 2   concept 3

Example: grinding machine   drilling machine   milling machine

3.412.3 Logical links

It occurs that two of three concepts compared are co-ordinated while the third one is either superordinated or subordinated to the other two. In such a case the two co-ordinated concepts are member concepts which are linked in order to form a third one, i.e. a species or a genus. The two co-ordinated concepts can be linked in one of the following ways:

(1) determination

A second concept is integrated as characteristic into the intension of the first; thus the intension of the first concept is enlarged by at least one additional characteristic. The resulting concept is a species of the first concept.

Example: plane -+ land = land plane (-+ = determined by)
(1st concept) (2nd concept) (resulting concept)
This is a plane which is capable of operating from land surface only.

(2) conjunction of concepts

Integration of the intensions of two member concepts.
Final concept: the next common species of the two member concepts

Example: landplane ∧ seaplane = amphibian (∧ = and)
This is a plane which is a landplane and at the same time a seaplane (see 3.521.1(2). It can operate from land and water surface.

(3) disjunction of concepts

Integration of the extensions of two member concepts.

Example: man ∨ woman = adult human being (∨ = or)
This is a human being which is either a man or a woman.

3.42 Ontological relationships

Ontological relationships are indirect relationships between concepts. They exist only between individuals which fall under the given concepts. Ontological relationships are characterized by contiguity (juxtaposition) in space or in time or by the connection cause-effect. The most important type of ontological relationships is the partitive relationship, i.e. the relationship between a whole and its parts.

3.421 Partitive relationships between two concepts

When comparing two individuals with respect to their relationship whole-part four possibilities exist: partitive subordination, partitive intersection, partitive co-ordination partitive diagonal relationship.

3.421.1 Partitive subordination (partitive vertical relationship)

If an individual object consists of the same parts as another individual object, however, it has in addition one more part, then this individual object comprises as whole the other one as part. This relationship is called subordination (whole-part). The concept of a part is called partitive concept; the reverse is the comprising concept.

Partitive superordination: whole
Partitive subordination: part

graphic symbol ≻— : whole ≻— part
letter sybmols BP, NP : BP whole
NP part

BP = Broader Concept Partitive
NP = Narrower Concept Partitive

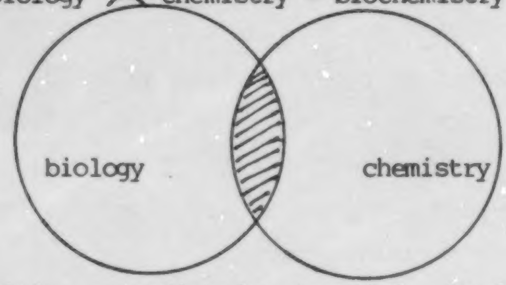
Examples: An aircraft is the "whole" of "fuselage":
aircraft ≻— fuselage
A wing is a part of an aircraft
wing —≺ aircraft

3.421.2 Partitive intersection

If two individual objects are compared with respect to their parts and have only some parts in common, then the concepts of these individual objects intersect.

graphic symbol ≻≺ : concept 1 ≻≺ concept 2
letter symbol IPR : concept 1 IPR concept 2
IPR = Intersecting Partitive Relationship

Example: biology ≻≺ chemistry = biochemistry



3.421.3 Partitive co-ordination (partitive horizontal relationship)

Partitive co-ordination exists between two individual objects which represent parts of a common whole.

graphic symbol ⊩ : concept 1 ⊩ concept 2
letter symbol HPR : concept 1 HPR concept 2
HPR = Horizontal Partitive Relationship

Example: "fuselage" is co-ordinated to "wing" (under the whole "aircraft")
fuselage ⊩ wing

3.421.4 Partitive diagonal relationship

If two parts of a common whole are related neither through subordination nor through co-ordination, they are in diagonal relationship to each other.

graphic symbol ∠ : concept 1 ∠ concept 2
graphic symbol ⦣ : concept 3 ⦣ concept 4
letter symbol DPR$^+$: concept 1 DPR$^+$ concept 2
letter symbol DPR$^-$: concept 3 DPR$^-$ concept 4
DPR = Diagonal Partitive Relationship

Examples: mechanics ∠ chemistry (under the whole "science")
nose ⦣ eyeball (under the whole "head")

3.422 Partitive relationships between three or more concepts

When comparing three concepts with respect to their partitive relationships, then three different possibilities exist, i.e. either only subordination or only co-ordination or both types of relationships simultaneously.

3.422.1 Partitive vertical series

In case of subordination the concepts form a partitive vertical series.

vertical series: concept 1
concept 2 (—< concept 1)
concept 3 (—< concept 2)

Example: motor car
engine
piston

3.422.2 Partitive horizontal series

In case of co-ordination the concepts form a horizontal series.

horizontal series
concept 1 concept 2 concept 3

Example: piston connecting rod crank shaft

3.422.3 Partitive link

By linking two or more individual objects, a new entity is created. This process is called integration.
The ontological link does not combine two or more member concepts, but two or more individual objects which belong to these concepts.

graphic symbol Y : individual object 1 Y individual object 2 Y .....

Example: man Y woman = human couple
brick Y brick Y brick ... = wall

3.423 Relationship of succession

The relationship of contiguity in time is a relationship of succession.

graphic symbol → : concept 1 → concept 2

Example: predecessor → successor
cf. tables of succession of rulers etc.

3.424 Relationship material - product

This relationship shows for instance different stages in the production of goods ranging from the raw-material to the final product.

graphic symbol →: concept 1 → concept 2

Example: wood → cabinet

3.43 Relationships of effect

This relationships of effect are vertical relationships.

graphic symbols → : concept 1 → concept 2
letter symbols V, N : V → N

Example: preceeding concept succeeding concept
preceeding concept (V) succeeding concept (N)

		V		N
3.431	Causality	cause	→	effect
3.432	Tooling	tool	→	tooling

3.433 Descent

(1) genealogic father → son
(2) ontogenetic egg → larve
larve → chrysalis

(3) stages of substances:

uranium I (^{238}U) → uranium II (^{234}Th) → radium ...
... → radon (^{222}Rn) ... → lead (^{206}Pb)

3.44 Relationships between subjects (for documentary languages)

3.441 General

In documentation and information, in particular for retrieval of information and data, terminological tools are used, which are called thesauri. It is necessary to specify them as documentation thesauri, since there are also thesauri for common language, which give a survey of a vocabulary from the purely semantic point of view. The main purpose of a documentation thesaurus is the terminological control, i.e. the reduction of terms to be used in the information system by the selection of preferred terms, which are called descriptors. Vocabulary control of the indexing language consists of two different measures /9/:

(1) elimination of synonyms and homonyms
(terminological purification)
It is the same procedure as in terminology standardization (see 1.052)
(2) widening or narrowing of the scope of descriptors and their delimination in "scope notes" UF and USE references, see. 4.071.3.

Information retrieval requires the representation of relationships existing between topics dealt with in documents in order to enable the inquirer to get all information on the subject inquired or related topics. Topics are concepts. The terms used have quite often a meaning specific for a certain information system.
The following relationships between topics exist:

3.442 Relationship between two subjects

Subjects are topics dealt with in documents or parts thereof. Though subjects themselves are concepts the relationships are neither logical nor ontological ones. They are thematic and more independent of the concept structure. The subject relationship does not concern the nature of the member concept. It indicates that the member concepts occur side by side as topics in a definite document. The linkage of two subjects does not result in a new concept such as in logical and ontological relationships.

3.442.1 Direct hierarchical relationships (vertical relationships)

When comparing two concepts (topics) one of them being broader than the other then a vertical relationship can be determined. This relationship is far more free than the logical or ontological relationship.

Superordination: Broader Concept
and
Subordination: Narrower Concept

graphic symbol ↠ : Broader Concept ↠ Narrower Concept
letter symbols B(T), N(T) : B(T) = Broader Concept
N(T) = Narrower Concept

Note: In documentation the expression BT = Broader Term and NT = Narrower Term are used, though broader or narrower concept is meant.

Example of thesaurus entry /10/:

LIGHTER-THAN-AIR AIRCRAFT
UF Aerodynes UF = used for
BT AIRCRAFT
NT FIXED-WING AIRCRAFT
RT AVIATION

3.442.2 Indirect hierarchical relationship

When comparing two concepts (topics) which are in horizontal or diagonal relationship (without distinction of logical or ontological relationship) to each other their relationship is indicated to be related. They are called related terms.

graphic symbol -: concept 1
- concept 2
letter symbol RT: concept 1
RT concept 2
RT = Related Term

Note: In documentation the expression "Related Term" is used, though related concept is meant.

Example of a thesaurus entry [11]:

BT AIRCRAFT
NT FREIGHT AEROPLANES
RT FREIGHT

3.442.3 Intersection

Intersecting concepts are usually turned into equivalents which are only valid within a certain information system. This is achieved by standardization. One term is then selected as preferred term to be used as descriptor, the other one as non-descriptor. In the thesaurus entry the user is referred from the non-descriptor to the descriptor.

graphic symbol → : concept 1 (non descriptor)
→ concept 2 (descriptor)
letter symbol USE: concept 1
USE concept 2

or vice versa
graphic symbol =: concept 2 (descriptor)
= concept 1 (non descriptor)
letter symbol UF: concept 2 (descriptor)
UF concept 1 (non descriptor)

Examples of thesaurus entries [12]:

Motion pictures
USE FILMS or TELEVISION

FILMS
UF Motion pictures

TELEVISION
UF Closed circuit television
   Motion pictures
   Video recording

3.443 Relationships between two or more subjects

The corresponding relationships to the vertical series and horizontal series of concepts are subject vertical sequences and subject horizontal sequences.

3.443.1 Subject vertical sequence

A subject vertical sequence is a classifying sequence of subjects, in which one topic is superordinated to the other, in other words the superordinated topic includes the subject which is subordinated at any level. It can be a logical or ontological vertical series, or a pseudo-hierarchical sequence.

Example for pseudo-hierarchical sequence:
electrotechnology
electrical machine
coil

3.443.2 Subject horizontal sequence

A subject horizontal series is a classifying sequence of topics which are formally co-ordinated. It can be a logical or ontological horizontal series, or a pseudo-horizontal sequence including also diagonal relationships.

Example for a pseudo-horizontal sequence:
steam power   power plant   electrotechnology

3.444 Subject links

The linkage of subjects does not create a new concept.

Subject conjunction means that two or more topics which have a connection of some sort are dealt with together in a document.
Subject disjunction means that two or more topics are dealt with separately in a document.

Subject links of different kinds are used in indexing, i.e. the description of the content of documents by key words which facilitates the retrieval of the most relevant references from the available stock of an information system. Subject links created for the purpose of information retrieval are either of a syntactic nature (preco-ordinate indexing) or they follow the rules of Boolean logic (postco-ordinate indexing).

3.5 CONCEPT AND SUBJECT SYSTEMS /13/

3.51 General

Concept and subject systems are also known as concept and subject classifications. The difference between these two systems is to be found in the relationships existing between the elements forming the system. The system forming relationships of concept systems are either relationships between intensions (i.e. characteristics) or relationships between individual objects (contiguity), which are realized by concepts. These are called conceptual relationships. In subject systems the system forming relationships concern the occurrence of concepts in form of subjects in documents. They are relationships of occurrence. For this reason there are omissions of members possible in the structure of a subject system rather than in the structure of a concept system.

Vertical and horizontal series of concepts (see 3.412.1 and 2, 3.422.1 and 2) or of subjects (see 3.443.1 and 2) can be extended in order to cover the totality of concepts of a field of learning or of a profession which is expressed by a concept or subject system. All members of such a system form a structure with levels, which is called hierarchy. Such hierarchies can be displayed graphically by tables, charts and diagrammes. There are a variety of graphical representations of concept and subject systems in existence which serve specific purposes and there will be even more in future. New graphical ways of representing concept and subject systems will be conceived for individual needs. Therefore a careful study on the usefulness of a particular graphical representation should be made. For this purpose a few basic types of graphical representations are given below.

3.52 Concept systems

Characteristics (see 3.34) play an eminent role for concept systems. They determine the place of the individual concept in the system. Characteristics can be grouped to form "types of characteristics" such as form (round, rectangular, etc), colour (green, red, etc.). These types of characteristics are the structuring elements and criteria of division of the systems. A given concept system depends on the selected types of characteristics. Any system can be constructed if the characteristics are independent (see 3.343.1). If the characteristics are dependent, they have to follow a given sequence (the characteristic "grinding" has to follow the characteristic "machining"). It should be stressed that the existence of two concept system with different structure for a specific subject field can be justified.

A concept system can be of the divisional or combinatory type. The divisional concept systems are monohierarchical. When characteristics are combined, combinatory concept systems are created. The most important graphical

for systems of concepts are:
- tree diagrams
- chain diagrams
- rectangular or circular field diagrams
- charts of characteristic bearers
- grid tables
- schedules

etc.

In analogy to logical and ontological relationships of concepts one speaks of logical, ontological and mixed systems of concepts, which are displayed by graphical representations.

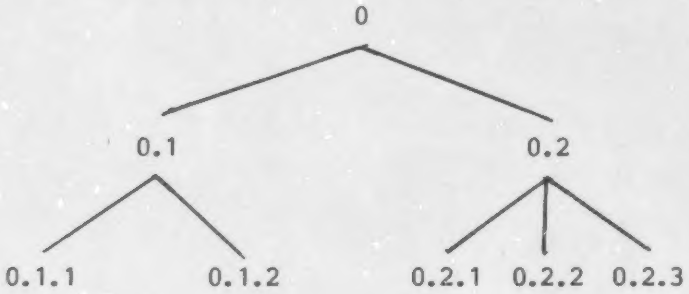
3.521 Logical system of concepts and their representations

In a logical system of concepts the members of the system are related to each other on the grounds of their similarity, i.e. on the grounds of how

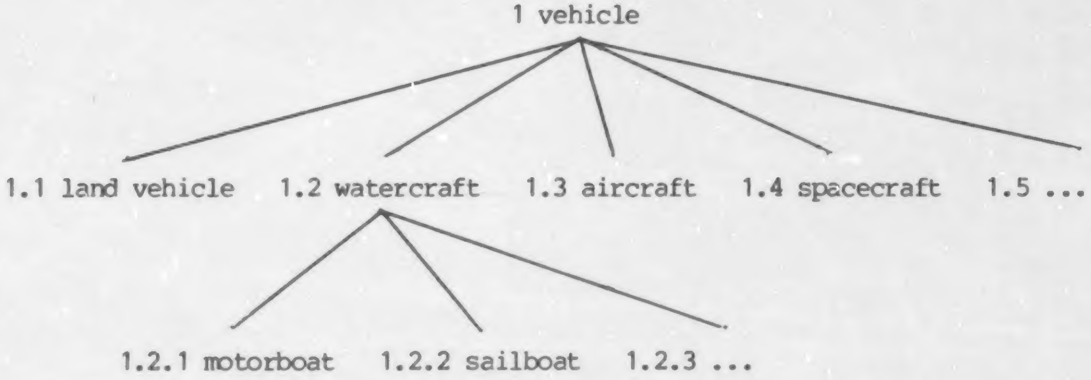
many characteristics these concepts have in common.
When constructing diagrams for concepts the choice of types of characteristics determine the structure of the diagrams concerned.

3.521.1 Tree diagrams

In the following tree diagrams for "vehicle", "aircraft" and "aeroplane" are given. In the case of "aeroplane" it is demonstrated by means of three examples that there are different options for the subdivision of aeroplane according to different types of characteristics (a, b, c). This holds for any system of concepts.
Tree diagrams have the form of pyramids.

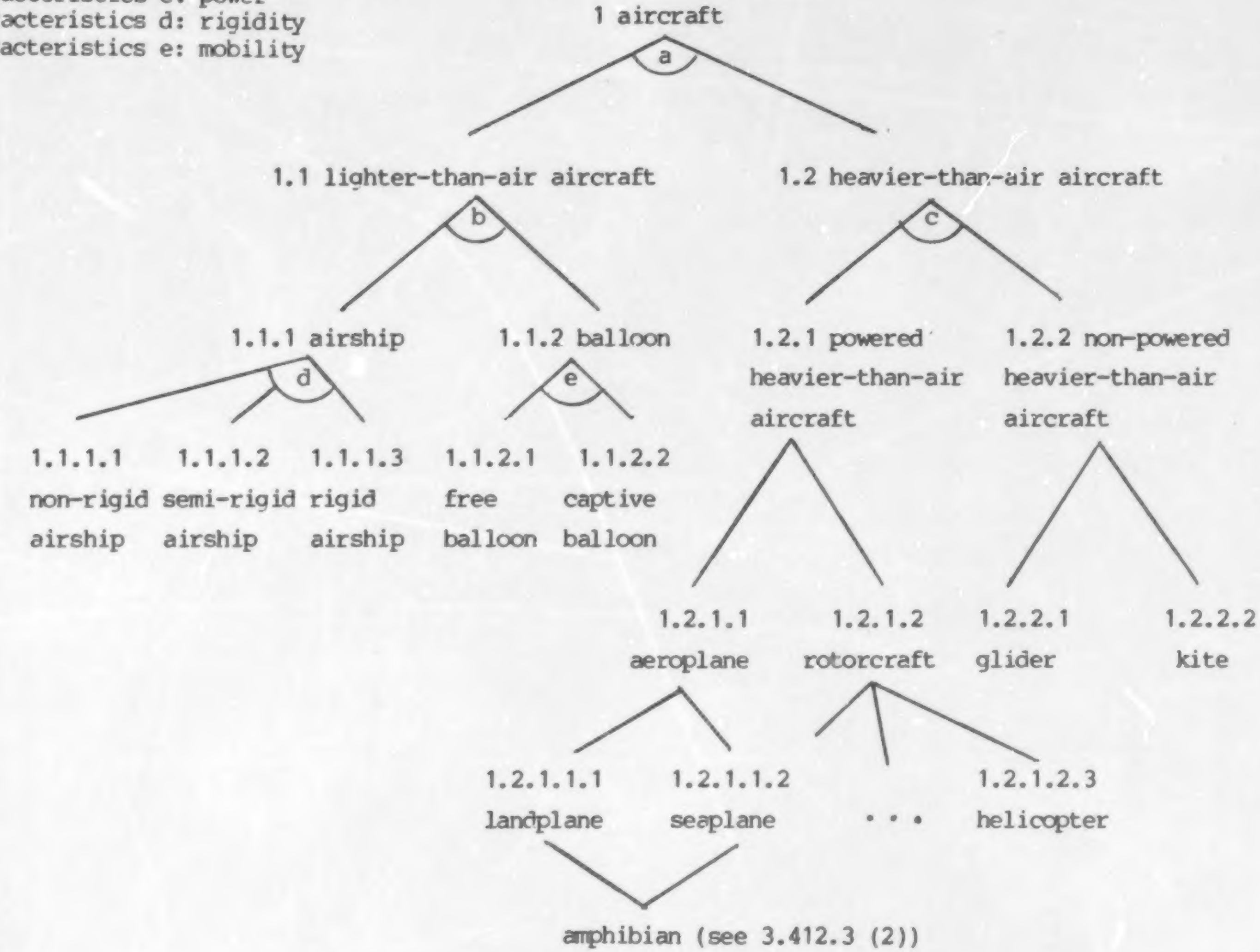

0
0.1
0.2
0.1.1
0.1.2
0.2.1
0.2.2
0.2.3

(1) Tree diagram of "vehicle"
Type of characteristics: motion on earth, sea, in the air or in space


1 vehicle
1.1 land vehicle
1.2 watercraft
1.3 aircraft
1.4 spacecraft
1.5 ...
1.2.1 motorboat
1.2.2 sailboat
1.2.3 ...

(2) Tree diagram "aircraft"

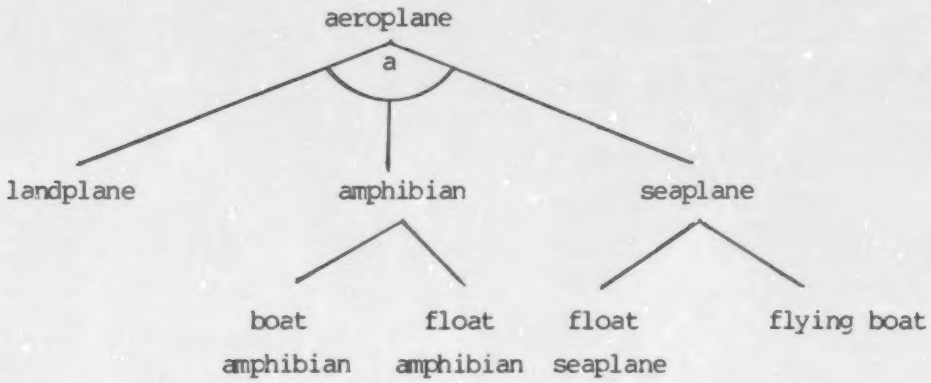
Type of characteristics a: behaviour in air
Type of characteristics b: dirigibility
Type of characteristics c: power
Type of characteristics d: rigidity
Type of characteristics e: mobility


1 aircraft
a
1.1 lighter-than-air aircraft
1.2 heavier-than-air aircraft
b
c
1.1.1 airship
1.1.2 balloon
1.2.1 powered heavier-than-air aircraft
1.2.2 non-powered heavier-than-air aircraft
d
e
1.1.1.1 non-rigid airship
1.1.1.2 semi-rigid airship
1.1.1.3 rigid airship
1.1.2.1 free balloon
1.1.2.2 captive balloon
1.2.1.1 aeroplane
1.2.1.2 rotorcraft
1.2.2.1 glider
1.2.2.2 kite
1.2.1.1.1 landplane
1.2.1.1.2 seaplane
• • •
1.2.1.2.3 helicopter
amphibian (see 3.412.3 (2))

(3) Tree diagrams of aeroplane (subdivided according to different types of characteristics)

Example 1

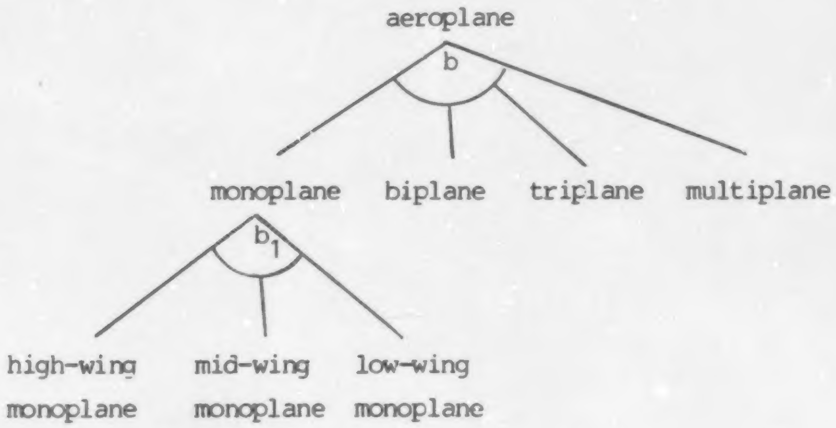
Type of characteristics a: motion on earth's or sea's surface


aeroplane
a
landplane
amphibian
seaplane
boat amphibian
float amphibian
float seaplane
flying boat

Example 2

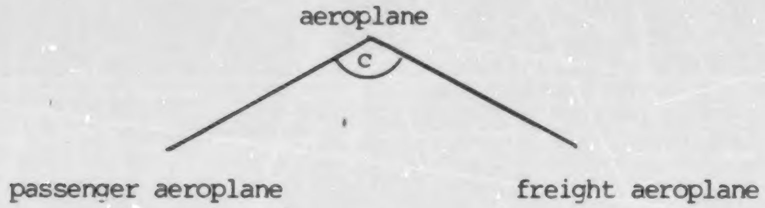
Type of characteristics b: number of planes

Type of characteristics b_1: position of planes


aeroplane
b
monoplane
biplane
triplane
multiplane
b_1
high-wing monoplane
mid-wing monoplane
low-wing monoplane

Example 3

Type of characteristics c: usage



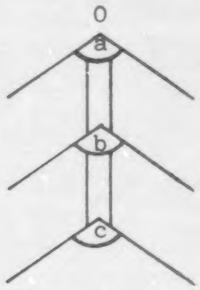
The three diagrams could also have been represented by a chain diagram (see below 3.521.2)

3.521.2 Chain diagrams

An alternative representation of systems of concepts in form of an chain diagram is given below. It is formed by a combination of tree diagrams having different types of characteristics (a, b, c). For practical purposes the representation in form of charts of characteristics (see 3.521.5) and characteristic bearers (see 3.521.6) is more appropriate especially if a large number of types of characteristics is involved.

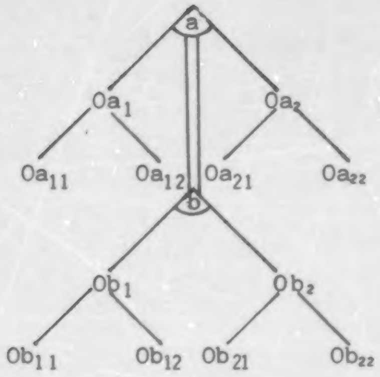
Example 1

Every type of characteristics (a, b, c) is represented by an angle.



Example 2

The types of characteristics can be represented also in form of a bundle (a, a_1, a_{11}, a_{12} ... b, b_1, b_{11} etc.)

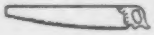
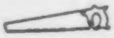
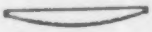
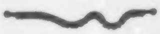
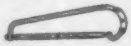
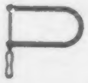
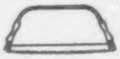
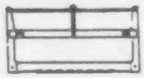
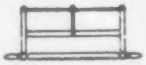

a
Oa$_1$
Oa$_2$
Oa$_{11}$
Oa$_{12}$
Oa$_{21}$
Oa$_{22}$
b
Ob$_1$
Ob$_2$
Ob$_{11}$
Ob$_{12}$
Ob$_{21}$
Ob$_{22}$

3.521.3 Rectangular field diagrams

For some applications rectangular field diagrams are more appropriate than tree diagrams Such diagrams should follow the structure as given below:

0	0.1	0.1.1
		0.1.2
	0.2	0.2.1
		0.2.2

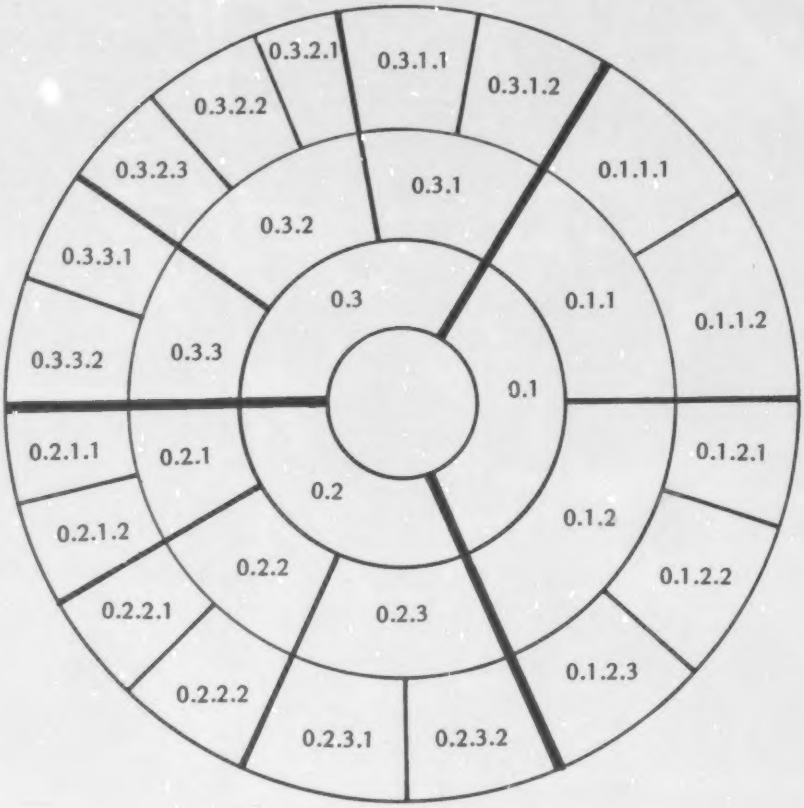
Example: Division of hand saws for wood cutting

				Examples of design
0 hand saw	1 hand saw without pretensioning Type of characteristics: one-man or two-man operation	1.1 stiff saw	1.1.1 one-man cross-cut saw	
			1.1.2 joiners' saw	
		1.2 two-man cross-cut saw	1.2.1 two-man slack saw	
			1.2.2 chain saw	
	2 pretensioned hand saw Type of charateristics: Blade longer or shorter than 500 mm	2.1 small frame saw	2.1.1 pruning frame saw	
			2.1.2 thin-bladed frame saw	
		2.2 large frame saw	2.2.1 logging saw	
			2.2.2 carpenters' frame saw	
			2.2.3 joiners' frame saw	

3.521.4 Circular field diagram /14/

For the representation of types of characteristics as well as characteristics themselves segments of circles can be used. This type of diagram permits a free combination of characteristics.

Example


0.3.2.1
0.3.1.1
0.3.1.2
0.3.2.2
0.1.1.1
0.3.2.3
0.3.1
0.3.2
0.3.3.1
0.3
0.1.1
0.1.1.2
0.3.3.2
0.3.3
0.1
0.2.1.1
0.2.1
0.1.2.1
0.2
0.1.2
0.2.1.2
0.2.2
0.1.2.2
0.2.2.1
0.2.3
0.1.2.3
0.2.2.2
0.2.3.1
0.2.3.2

Example of a presentation of characteristics and their possible combinations

Characteristics:

0.1 circle
0.2 triangle
0.3 square

0 chip

0.1.1 wood
0.1.2 plastic

0.1.1.1 small
0.1.1.2 large
0.1.2.1 small
0.1.2.2 medium
0.1.2.3 large

Full form: 0.1.2.2 medium sized circular plastic chip

3.521.5 Charts of characteristics (with the characteristics represented by terms) /15/

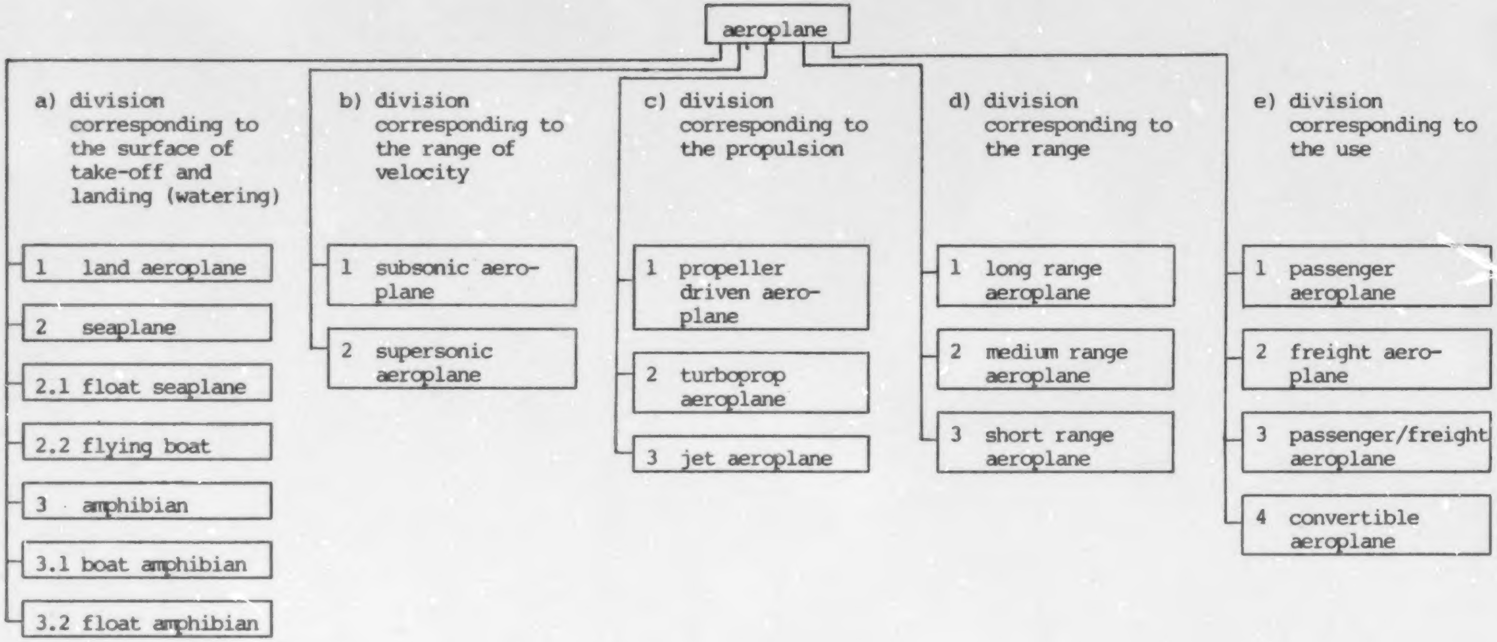
Example:

0 = aeroplane

a	b	c	d	e
Surface of take-off and landing (watering)	Range of velocity	Propulsion	Range	Use
a_1 land a_2 sea a_3 sea and land	b_1 subsonic b_2 supersonic	c_1 propeller driven c_2 turbopropeller driven c_3 jet	d_1 long range d_2 medium range d_3 short range	e_1 passenger e_2 freight e_3 passenger and freight e_4 convertible

3.521.6 Charts of characteristics bearers [16]

Example:


aeroplane
a) division corresponding to the surface of take-off and landing (watering)
1 land aeroplane
2 seaplane
2.1 float seaplane
2.2 flying boat
3 amphibian
3.1 boat amphibian
3.2 float amphibian
b) division corresponding to the range of velocity
1 subsonic aeroplane
2 supersonic aeroplane
c) division corresponding to the propulsion
1 propeller driven aeroplane
2 turboprop aeroplane
3 jet aeroplane
d) division corresponding to the range
1 long range aeroplane
2 medium range aeroplane
3 short range aeroplane
e) division corresponding to the use
1 passenger aeroplane
2 freight aeroplane
3 passenger/freight aeroplane
4 convertible aeroplane

3.521.7 Grid tables /17/

If only two types of characteristics are involved, a representation in the form of a grid table ist most appropriate.

Example:

a b	a_1	a_2	a_3
b_1	a_1b_1	a_2b_1	a_3b_1
b_2	a_1b_2	a_2b_2	a_3b_2

This grid table corresponds to the following chart of characteristics:

a	b
a_1	b_1
a_2	b_2
a_3	

3.521.8 Schedules

The terms of the concept diagrams can be listed in a schedule.

Example 1

schedule	
1	vehicle
1.1	land vehicle
1.2	water craft
1.2.1	motorboat
1.2.1.1	....
1.2.2	sailboat

Example 2

schedule with indentation

vehicle
  land vehicle
  ...
  water craft
    motorboat

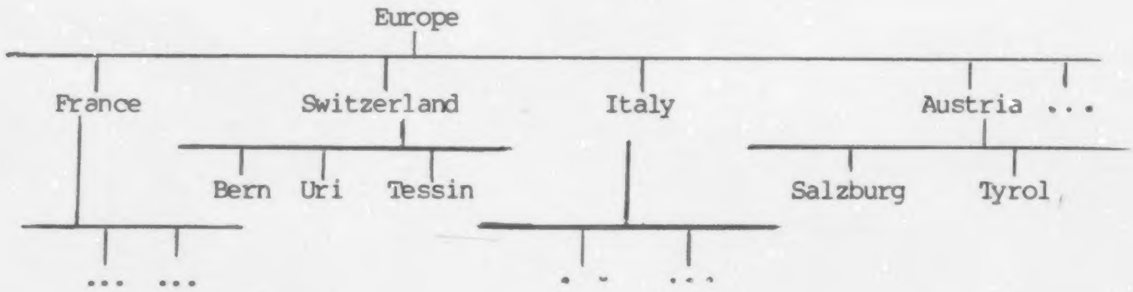
3.522 Partitive systems and their representations

In a partitive system the relationships between the members of the system do not concern the concepts but the individual objects related. These relationships are relationships of contiguity (see 3.42). In contradistinction to logical systems, which are represented by tree diagrams, ontological systems should be represented by bracket diagrams.

3.522.1 Bracket diagrams

In the following diagram a partitive system is represented. A partitive system is based on partitive relationships (see 3.421) only.

Example

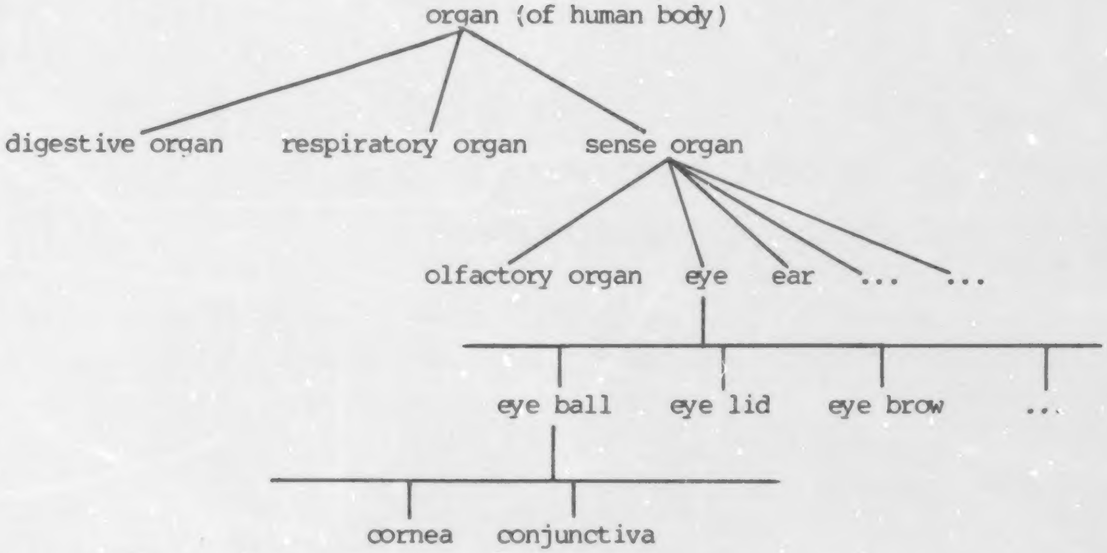


3.522.2 Diagram of a combination of a logical system of concepts and a partitive system

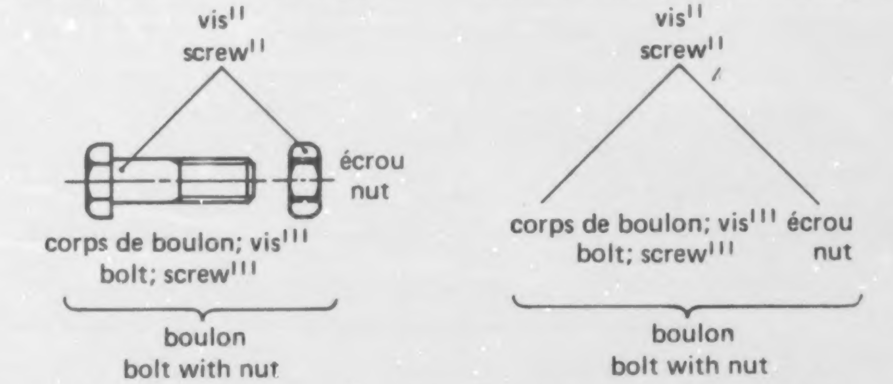
In practice sometimes it is necessary to combine logical with partitive systems. Two examples are given below:

Example 1

organ (of human body) [18]


organ (of human body)
digestive organ
respiratory organ
sense organ
olfactory organ
eye
ear
...
...
eye ball
eye lid
eye brow
...
cornea
conjunctiva

Example 2 Screw [19]


Representation of an object

Genealogical tree of concepts
vis''
screw''
écrou
nut
corps de boulon; vis'''
bolt; screw'''
boulon
bolt with nut
vis''
screw''
corps de boulon; vis'''
bolt; screw'''
écrou
nut
boulon
bolt with nut

The tree represents a logical system, the bracket an ontological system.

3.53 Subject systems

Subject systems are in use in documentation thesauri, as arrographs, classified tables of contents or classified schedules. In the following four examples of documentation thesauri are given:

Example 2

Circular arrowgraph [21]

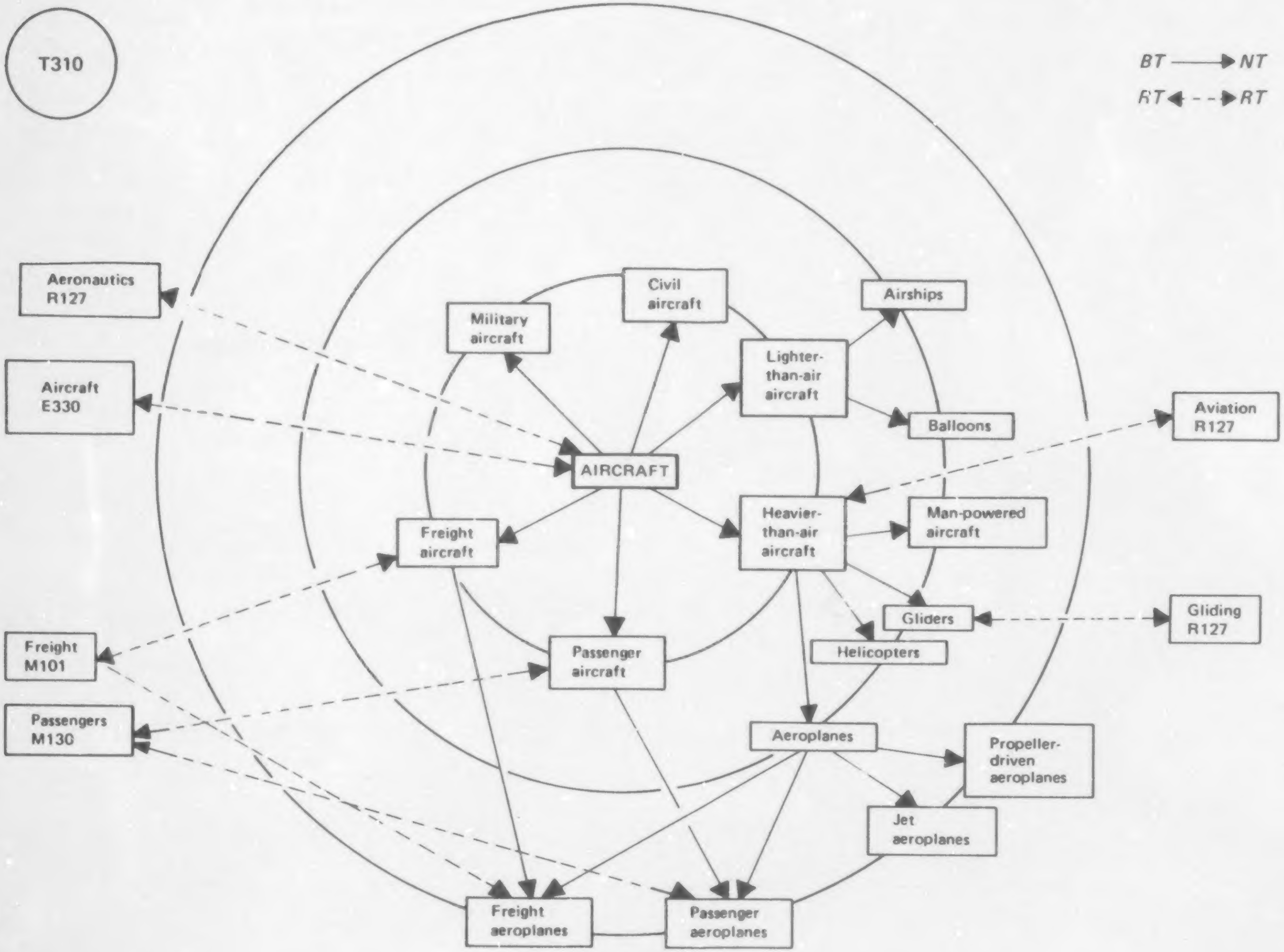
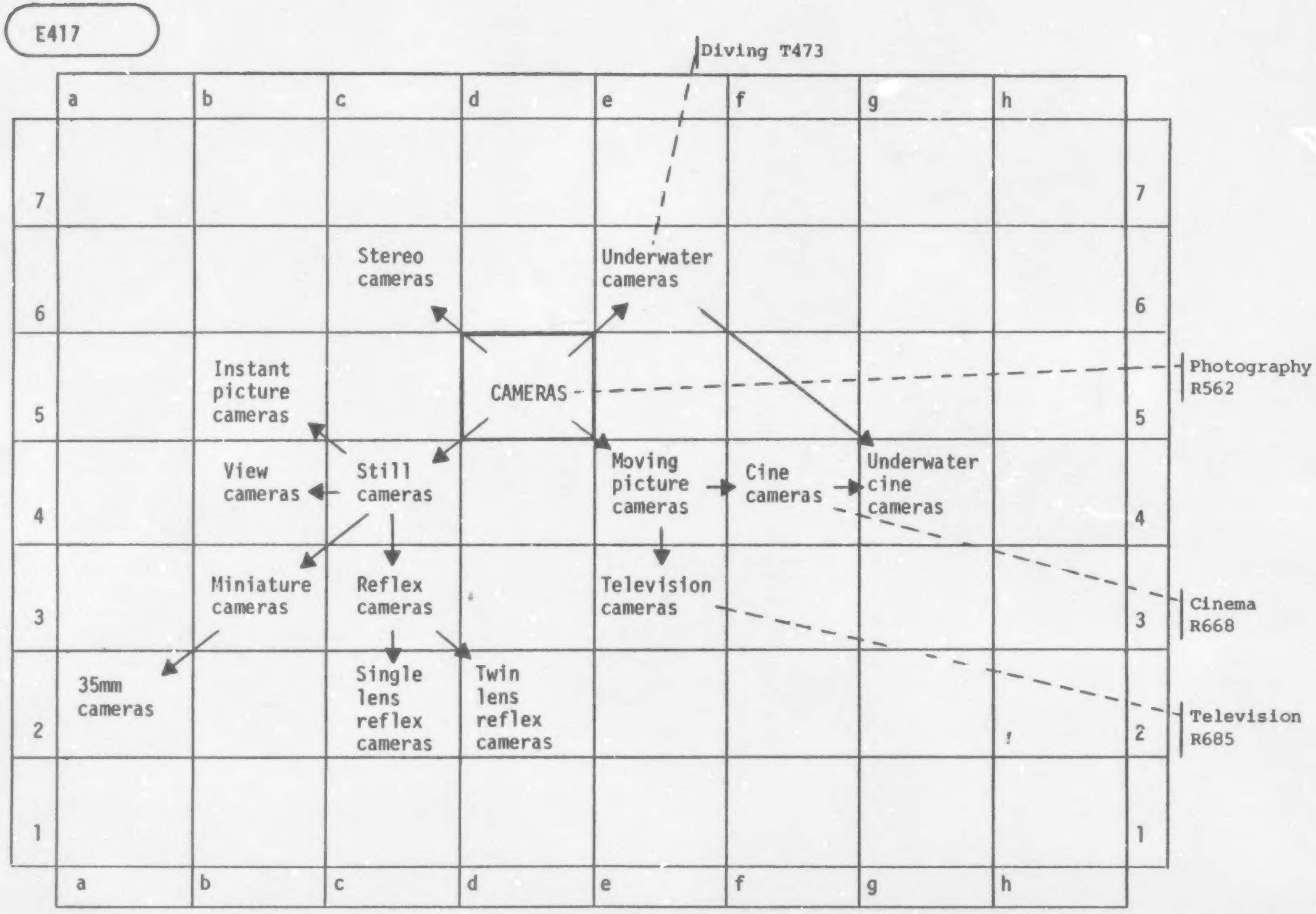

T310
BT → NT
RT ◄- - -► RT
Aeronautics R127
Aircraft E330
Military aircraft
Civil aircraft
Airships
Lighter-than-air aircraft
Balloons
Aviation R127
AIRCRAFT
Heavier-than-air aircraft
Man-powered aircraft
Freight aircraft
Gliders
Gliding R127
Helicopters
Freight M101
Passenger aircraft
Passengers M130
Aeroplanes
Propeller-driven aeroplanes
Jet aeroplanes
Freight aeroplanes
Passenger aeroplanes

Figure 4(a). Arrowgraph

Example 1

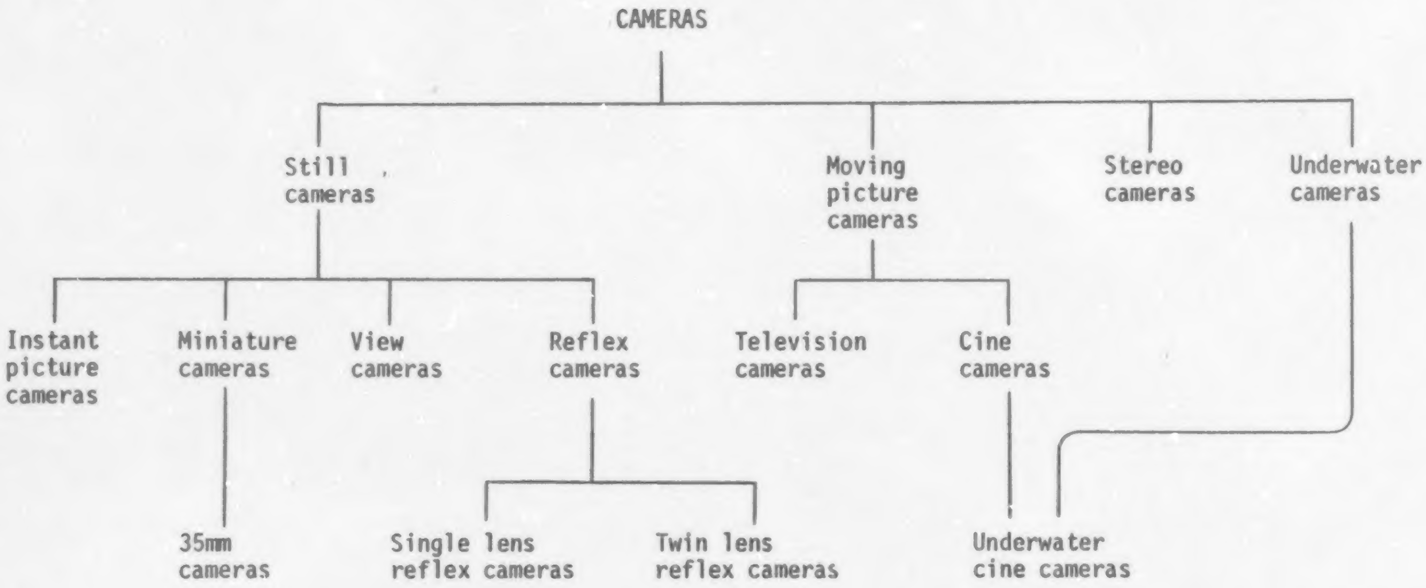
Rectangular Arrowgraph [207]


E417
Diving T473
a
b
c
d
e
f
g
h
7
6
5
4
3
2
1
Stereo cameras
Underwater cameras
Instant picture cameras
CAMERAS
Photography R562
View cameras
Still cameras
Moving picture cameras
Cine cameras
Underwater cine cameras
Miniature cameras
Reflex cameras
Television cameras
Cinema R668
35mm cameras
Single lens reflex cameras
Twin lens reflex cameras
Television R685

E417

Example 3

Tree diagram /22/


CAMERAS
Still cameras
Moving picture cameras
Stereo cameras
Underwater cameras
Instant picture cameras
Miniature cameras
View cameras
Reflex cameras
Television cameras
Cine cameras
35mm cameras
Single lens reflex cameras
Twin lens reflex cameras
Underwater cine cameras

BEST COPY AVAILABLE

Example 4

Classified schedule /23/

C/E	**Science**
EM/EZ	**Life sciences** (continued)
EN/EZ	**Biology** (continued)
ES/EW	**Botany** (continued)
ET/EW	Plants (continued)
EVP	Schizophyta
	*>Actinomycetales EPF.F
	*>Eubacteriales EPF.B
EVR	Myxomycophyta
	=Slime fungi
	=Slime moulds
EVT	Eumycophyta
	=Eumycetes
	=Fungi
EVT.B	Phycomycetes
EVT.E	Ascomycetes
EVT.EG	Yeast
	*<Microorganisms EP
	*–Baking (food) IQC.C
	*–Bread IDK.D
	*–Brewing INL
	*–Fermentation DDS.K
	*–Food additives IIP
	*–Raising agents IIP.V
EVT.L	Basidiomycetes
EVT.V	Fungi imperfecti
EVV	Bryophyta
EVV.E	Hepaticae
	=Liverworts
EVV.I	Anthocerotae
	=Hornworts
EVV.O	Musci
	=Mosses
EVX	Tracheophyta
	(By class)
EVX.E	Lycopodineae
	(By family)
EVX.ED	Lycopodiaceae
	=Club mosses
EVX.EN	Selaginellaceae
EVX.ES	Isoetales
	=Quillworts
EVX.L	Equisetineae
	=Sphenopsida
	(By family)
EVX.LL	Equisetaceae
	=Horsetails (plants)
EVX.R	Filicineae
	=Ferns
	=Pteropsida
	(By family)
EVX.RC	Osmundaceae
EVX.RF	Hymenophyllaceae
EVX.RJ	Polypodiaceae

3.54 Unified concept or subject systems for several languages

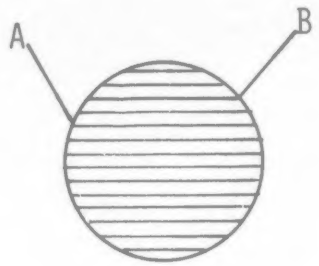
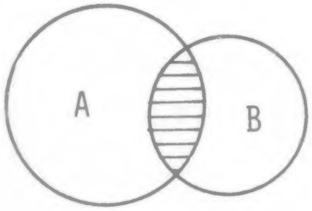
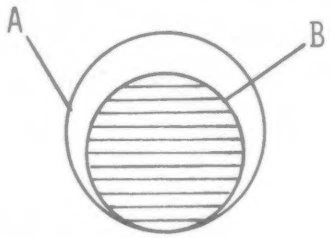
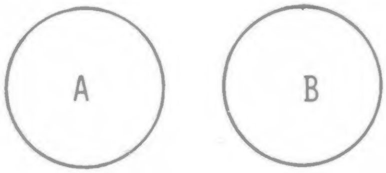
3.541 General

For international communication unified concept or subject systems in several languages are required. The international unification of concepts becomes necessary when several languages are used side by side for specific tasks, aims, undertakings etc., as this is the case in transnational or international organizations. When preparing multilingual specialized vocabularies or documentation thesauri, a comparison of concepts in different national languages is inevitable. Such a comparison reveals that concepts and systems of concepts differ from language to language. The preparation of a classified multilingual specialized vocabulary requires the elaboration of a unified concept system. A multilingual documentation thesaurus requires a unified subject system.

3.542 Comparison of corresponding concepts in different languages

When comparing concepts of a given field in different languages it is found that some concepts coincide, most of the concepts, however, do not coincide. Different degrees of equivalency are discovered to exist. These degrees of equivalency depend upon the coinciding portions of the intensions of two concepts.
The intension of a concept is the aggregate of characteristics which constitute the concept. Therefore the comparison of concepts is more or less the comparison of the characteristics of the concepts concerned. The following scheme shows the degrees of equivalency.

Comparison of concepts in different languages
Concept A has the characteristics a_1, a_2, a_3 ... (language 1)
Concept B has the characteristics b_1, b_2, b_3 ... (language 2)

Concepts A and B	Comparison	Intension
1 Exact concept equivalence	A = B	
A = a_1, a_2, a_3 ... B = b_1, b_2, b_3 ...	$a_1=b_2$ $a_2=b_2$ $a_3=b_3$. = .	
2 Intersection	A B	
A = a_1, a_2, a_3, a_4 ... B = b_1, b_2, b_3, b_4	$a_1=b_1$ $b_2=b_2$ $a_3=b_3$ $a_4 \neq b_4$ $a_5 \neq b_5$ etc.	
3 Superordination	A B	
A = a_1, a_2, a_3 ... B = b_1, b_2, b_3, b_4 The intension of A is greater than B. Therefore A has less characteristics	$a_1=b_1$ $a_2=b_2$ $a_3=b_3$ b_4 a_4=missing	
4 Concept non-equivalence	A ≠ B	
A = a_1, a_2, a_3, ... B = b_1, b_2, b_3, ...	$a_1 \neq b_1$ $a_2 \neq b_2$ $a_3 \neq b_3$ etc.	

Examples:

Equivalence

F machine-outil $=$ D Werkzeugmaschine

Intersection

E cricket $\times$ D Schlagball

Both games use the same instruments but are played according to different rules.

Superordination

E machine tool $<$ F machine-outil; D Werkzeugmaschine

F machine-outil and D Werkzeugmaschine respectively is a machine for cutting and forming.

E machine tool is a machine for cutting alone.

3.543 Comparison of individual objects in different languages

A comparison of individual objects in different languages shows the following degrees of equivalency:

1 Equivalence of individual objects	$A = B$	The individual objects have the same parts
2 Intersection of individual objects	$A \succ\!\prec B$	The individual objects A and B have only some parts in common
3 Superordination of individual objects	$A \succ\!- B$	The individual object A has at least one more part than B
4 Non-equivalence of individual objects	$A \neq B$	The individual objects A and B have different parts

Examples:

Intersection

E Quaternary $\succ\!\prec$ D Quartär

Superordination

E tool —< F outillage
tool (simple device to work materials)
outillage (simple device to work materials which comprises
measuring devices and holding devices)

3.544 Indication of different degrees of equivalency in vocabularies

As mentioned before most corresponding concepts or individual objects compared in different languages do not coincide completely. Unfortunately, this fact is not taken into account in present multilingual specialized vocabularies, which gives quite often rise to misinterpretations and wrong translations. For this reason modern specialized vocabularies (including translation vocabularies) should indicate the different degrees of equivalency with the appropriate symbols (=, x, > , ≠, >—< , >—) especially if the vocabulary is intended to be used for scientific and technical purposes. This requires a careful concept or object analysis by the specialists in question.

3.545 Unified concept systems for several languages

When preparing a multilingual classified specialized vocabulary, one of the most difficult tasks to be carried out is the development of a unified concept system for all languages accepted for the vocabulary. However, if this system is developed it can be used for any additional language.

First of all it should be examined if an internationally accepted classification exists, which can be adopted as it is or at least adapted to the specific needs.

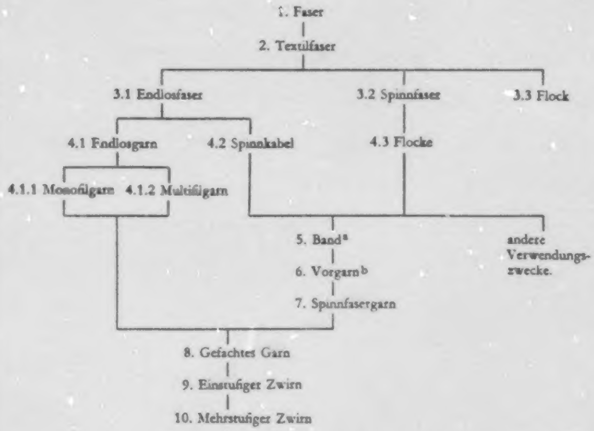
If such a classification does not exist, such a system will have to be elaborated on the basis of two or more accepted national concept systems, which exist in the languages compared. These systems will have their individual stuctures due to the different types of characteristics chosen.

A unified system of concepts for several languages can be realized by standardization (see example below).

Example: System of concepts for fibres for German, English, French and Spanish [24]

Morphologisches Schema der Grundbegriffe und ihre Definitionen

I. Morphologisches Schema

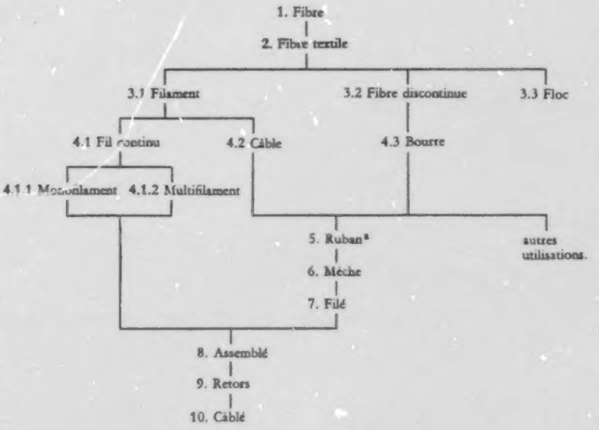

1. Faser
2. Textilfaser
3.1 Endlosfaser
3.2 Spinnfaser
3.3 Flock
4.1 Endlosgarn
4.2 Spinnkabel
4.3 Flocke
4.1.1 Monofilgarn
4.1.2 Multifilgarn
5. Band[a]
6. Vorgarn[b]
7. Spinnfasergarn
andere Verwendungszwecke.
8. Gefachtes Garn
9. Einstufiger Zwirn
10. Mehrstufiger Zwirn

a) Spinnband, Krempelband, Streckenband, Kammzug.
b) oder: Lunte.

N.B. Dieses Schema, dem in der Regel der Verarbeitungsweg bis zum Zwirnen einschliesslich zugrunde liegt, besagt nicht, dass jede Textilfaser in allen angegebenen Erscheinungsformen auftritt. Es stellt auch nicht eine vollständige Zusammenstellung der bei den verschiedenen Verfahren möglichen Stufen dar.

Schéma morphologique des termes principaux et leurs définitions

I. Schéma morphologique

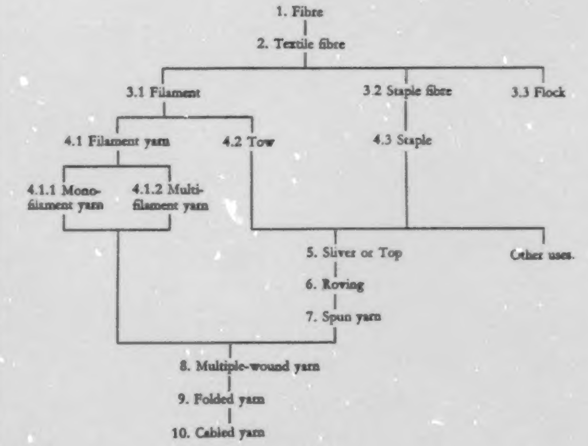

1. Fibre
2. Fibre textile
3.1 Filament
3.2 Fibre discontinue
3.3 Floc
4.1 Fil continu
4.2 Câble
4.3 Bourre
4.1.1 Monofilament
4.1.2 Multifilament
5. Ruban[a]
6. Mèche
7. Filé
autres utilisations.
8. Assemblé
9. Retors
10. Câblé

a) de carde, d'étirage, peigné, converti.

N.B. Le schéma, établi sur une base rappelant en principe la suite des opérations textiles – jusqu'au câblé inclus –, n'implique pas que chaque fibre textile se présente sous toutes les formes indiquées et ne mentionne que les cycles principaux de transformation de ces fibres.

Morphological Scheme for the Main Terms and their Definitions

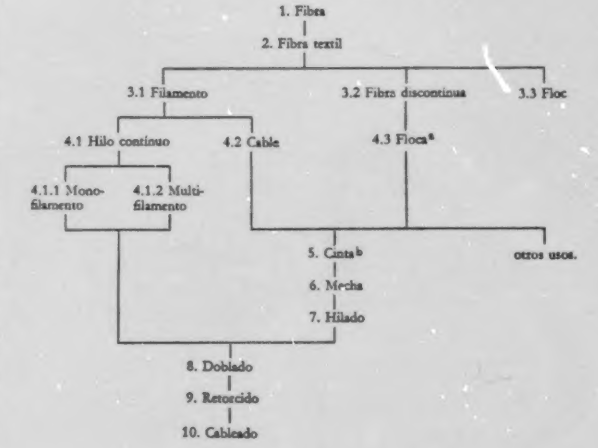
I. Morphological Scheme


1. Fibre
2. Textile fibre
3.1 Filament
3.2 Staple fibre
3.3 Flock
4.1 Filament yarn
4.2 Tow
4.3 Staple
4.1.1 Monofilament yarn
4.1.2 Multifilament yarn
5. Sliver or Top
6. Roving
7. Spun yarn
Other uses.
8. Multiple-wound yarn
9. Folded yarn
10. Cabled yarn

N.B. This scheme is based in general on the normal sequence of textile operations, up to and including those of twisting. It should not be interpreted as implying that every textile fibre may necessarily exist in, or pass through, all the stages mentioned. Moreover, it covers only the main sequences of operations commonly used in the textile industry.

Esquema morfológico de los términos principales y sus definiciones

I. Esquema morfológico


1. Fibra
2. Fibra textil
3.1 Filamento
3.2 Fibra discontinua
3.3 Floc
4.1 Hilo continuo
4.2 Cable
4.3 Floca[a]
4.1.1 Monofilamento
4.1.2 Multifilamento
5. Cinta[b]
6. Mecha
7. Hilado
otros usos.
8. Doblado
9. Retorcido
10. Cableado

a) o: Borra.
b) de carda, de manuar.

N.B. – El esquema, establecido en principio sobre la base de las diferentes operaciones del proceso textil – cableado incluído – no supone que cada fibra textil se presente bajo todas las formas indicadas y tan solo hace mención a los principales ciclos de transformación de estas fibras.

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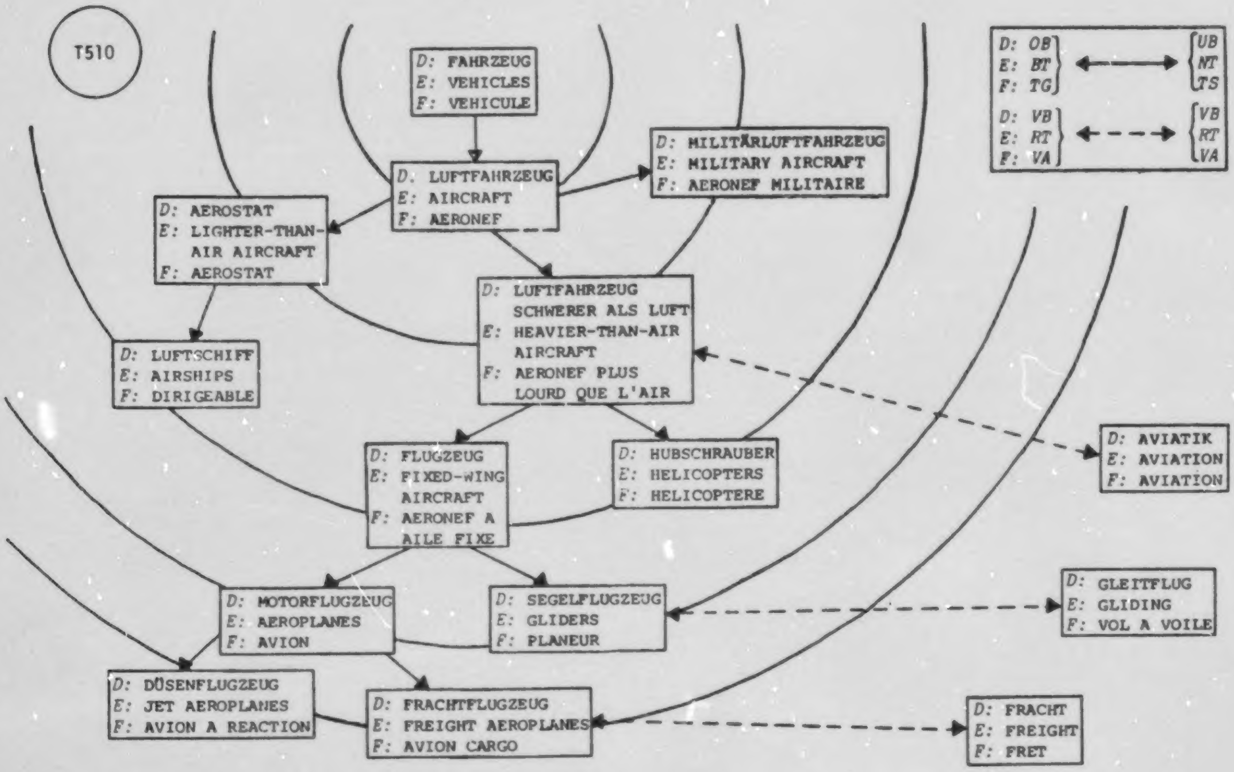
3.546 Unified subject systems for several languages

For international information systems which have an important function for the dissemination of information in the world, multilingual thesauri are used. Such thesauri comprise very frequently unified subject systems. These diagrams (arrowgraphs, concentric circles, clusters, co-ordinate grid systems) can be multilingual or monolingual. An example of an unified subject system for German, English and French) is given below.

Examples:

(1) Multilingual circular arrowgraph /25/


T510
D: FAHRZEUG E: VEHICLES F: VEHICULE
D: LUFTFAHRZEUG E: AIRCRAFT F: AERONEF
D: MILITÄRLUFTFAHRZEUG E: MILITARY AIRCRAFT F: AERONEF MILITAIRE
D: AEROSTAT E: LIGHTER-THAN-AIR AIRCRAFT F: AEROSTAT
D: LUFTFAHRZEUG SCHWERER ALS LUFT E: HEAVIER-THAN-AIR AIRCRAFT F: AERONEF PLUS LOURD QUE L'AIR
D: LUFTSCHIFF E: AIRSHIPS F: DIRIGEABLE
D: FLUGZEUG E: FIXED-WING AIRCRAFT F: AERONEF A AILE FIXE
D: HUBSCHRAUBER E: HELICOPTERS F: HELICOPTERE
D: AVIATIK E: AVIATION F: AVIATION
D: MOTORFLUGZEUG E: AEROPLANES F: AVION
D: SEGELFLUGZEUG E: GLIDERS F: PLANEUR
D: GLEITFLUG E: GLIDING F: VOL A VOILE
D: DÜSENFLUGZEUG E: JET AEROPLANES F: AVION A REACTION
D: FRACHTFLUGZEUG E: FREIGHT AEROPLANES F: AVION CARGO
D: FRACHT E: FREIGHT F: FRET
D: OB E: BT F: TG
UB NT TS
D: VB E: RT F: VA
VB RT VA

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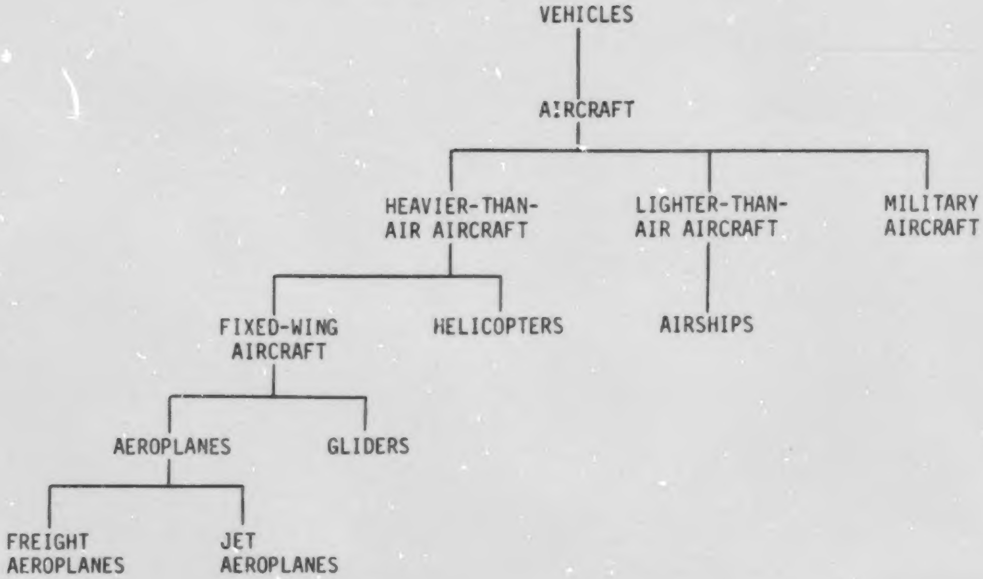
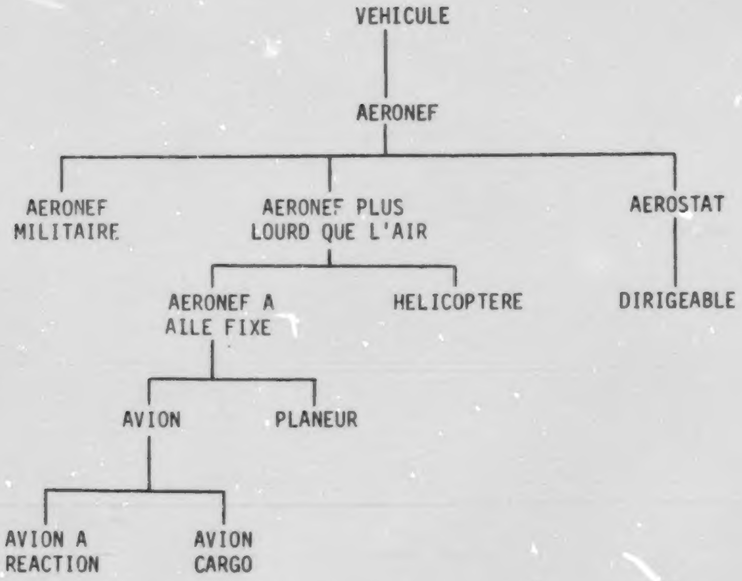
(2) Unified monolingual tree diagrams [26]

T200


VEHICLES
AIRCRAFT
HEAVIER-THAN-AIR AIRCRAFT
LIGHTER-THAN-AIR AIRCRAFT
MILITARY AIRCRAFT
FIXED-WING AIRCRAFT
HELICOPTERS
AIRSHIPS
AEROPLANES
GLIDERS
FREIGHT AEROPLANES
JET AEROPLANES

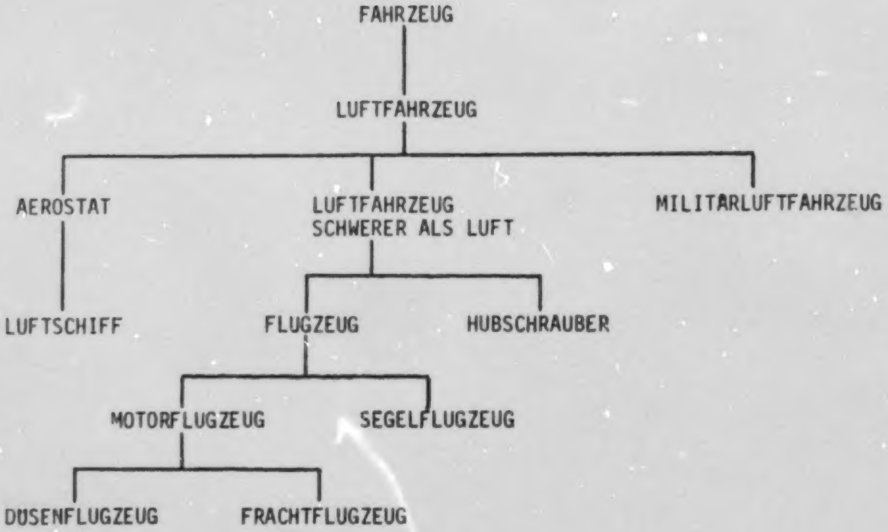
English tree structure

T400


VEHICULE
AERONEF
AERONEF MILITAIRE
AERONEF PLUS LOURD QUE L'AIR
AEROSTAT
AERONEF A AILE FIXE
HELICOPTERE
DIRIGEABLE
AVION
PLANEUR
AVION A REACTION
AVION CARGO

French tree structure

T600


FAHRZEUG
LUFTFAHRZEUG
AEROSTAT
LUFTFAHRZEUG SCHWERER ALS LUFT
MILITARLUFTFAHRZEUG
LUFTSCHIFF
FLUGZEUG
HUBSCHRAUBER
MOTORFLUGZEUG
SEGELFLUGZEUG
DUSENFLUGZEUG
FRACHTFLUGZEUG

German tree structure

3.6 DESCRIPTION OF CONCEPTS (DEFINITIONS, EXPLANATIONS) /27/

A concept can be described either by a definition or explanation. If it is not possible in a certain case to provide a definition at least an explanation of the concept should be given. The definition is the key to any scientific work.

A definition is a description of a concept by means of other known concepts, mostly in form of words and terms. It determines the position of this concept in a system of other related concepts. An explanation is a description of a concept whithout considering its position in a system of concepts.

For the definition concepts can be linked by:
(1) determination (see 3.412.3(1))
(2) conjunction (see 3.412.3(2))
(3) disjunction (see 3.412.3(3))
(4) integration (see 3.422.3)

Depending on the concept linkage there are definitions by intension (determination) or definitions by extension (conjunction, disjunction, integration).

In general there is a large number of types of definitions /28/. For terminology work the two basic types of definitions which are mentioned above should bee given preference.

Definitions can also be categorized according to their purpose into descriptive and prescriptive definitions.

- a descriptive definition states which meaning a term has
- a prescriptive definition states which meaning a term should have.

3.61 Definitions by intension

A definition by intension consists of a specification of the characteristics of the concept to be defined, i.e. the description of the intension of the concept. For this purpose first the nearest genus that has either been defined already or can be expected to be generally known - not a generic concept of a higher level of abstraction - is found. Then the genus is restricted to the correct extension by its linking to characteristics, which differentiate the concept to be defined from other concepts of the same level of abstraction. These characteristics are called restricting characteristics. The restricting characteristics belong to one type of characteristics.

A definition by intension is thus the extensive linguistic expression of a link of concepts which is produced by determination.

Example:

Pattern: term: genus + restricting characteristic(s)

(1) With one restricting characteristic

airship: A power-driven lighter-than-air aircraft BS /29/
genus: lighter-than-air aircraft
restricting characteristic: power-driven

balloon: A non-power-driven lighter-than-air aircraft BS /30/
genus: lighter-than-air aircraft
restricting characteristic: non-power-driven

"airship" and "balloon" are species at the same level of abstraction which belong to the common genus "lighter-than-air aircraft" (see 3.521.1(2))

(2) With several restricting characteristics

kite: A non-power-driven heavier-than-air aircraft without controls, anchored or towed by a line (BS) /31/
genus: non-power-driven heavier-than-air aircraft
characteristics:
- without controls
- anchored or towed by a line

3.611 Restricting characteristics as elements of the definition by intension

Restricting characteristics are elements of the definition by intension, which are used to classify concepts. The structure of a system of concepts depends on the selection of types of characteristics for the individual levels of abstraction.

For example "table" can be classified in the following ways:

type of charcteristics	characteristics
usage	dining, writing, working, etc, table
form	round, oval, square etc. table
material	wooden, steel, plastic etc. table
etc.	

In many cases a characteristic can be combined with any other characteristic (see 3.343.1). There are, however, characteristics which are dependent on each other such as "wood" and "oak wood" which in turn causes a dependency of definitions containing these characteristics.

This is also true of compound terms and terminological phrases as is exemplified below:

level 1	table	
level 2	rectangular table	dinner table
level 3	rectangular wooden table	rectangular dinner table
level 4	rectangular table made of oakwood	rectangular extending dinner table
level 5	rectangular extending table made of oakwood	rectangular wooden extending dinner table
level 6	rectangular extending dinner table made of oakwood	rectangular extending dinner table made of oakwood

3.612 Incomplete definitions by intension

In establishing a definition by intension, care should be taken not to omit the restricting characteristics.

Example: In dictionaries for general use one frequently encounters definitions of the following type:
screw: device for fastening, or kind of fastening device

Such a definition is incomplete, since it does not contain the restricting characteristic, i.e. one which distinguishes screws from other fastening elements, such as wedges or rivets, for instance, which belong to the same level of abstraction. An incomplete definition by intension can easily be recognized by the fact that the two sides of the equation cannot be interchanged.

3.62 Definitions by extension

A definition by extension consists of an enumeration of all species, which are at the same level of abstraction, or of all individual objects belonging to the concept defined.

It is an extensive linguistic expression of a link of concepts which is the result of a conjunction, disjunction or integration.

The definition by extension can never be exhaustive since owing to development or new research additional species, for instance new constructions, which fall under the definition by extension, may arise. Quite often a definition by extension is more easily understood than a definition by intensions. Therefore it can be useful to complete a definition by intension through a definition by extension.

Examples

(1) Enumeration of species or individual objects:
aircrafts are: aeroplanes, gliders, kites, airships, balloons, rotorcrafts, ornithopters

(2) Conjunction
amphibian: landplane and at the same time seaplane (see 3.521.1(2))

(3) Disjunction
child: girl or boy

(4) Integration
water (chemistry): compound of two hydrogen atoms and one oxygen atom

3.63 Description of the collocation of individual objects

The description of the collocation of individual objects revealing their partitive relationships corresponds to the definition of concepts. Such a description may concern the composite (see 3.33). In this case the parts of a composite are enumerated. It may, however, also concern a part. In this case the relationship of an individual object subordinate to the composite and the adjoining parts are indicated.

Examples

(1) An aeroplane is composed of the following parts: fuselage, engine(s), wing(s), fin, landing gear, flight instruments

(2) wing: part of an aeroplane which is connected with the fuselage and which is divided into inner, outer and wing-tip sections

(3) Washington: state of the USA, which is situated in the North-West and is bordering to Oregon and Idaho

3.64 Illustrations

Illustrations are often useful for giving precision or clarity to a definition. The type of illustration to be used varies according to the purpose. Illustrations may be either pictoral or diagrammatic.

Pictures (realistic), either photographs or others, supplement the general definition by showing examples of the class of objects defined. Since they are only examples they may be ambiguous. Nevertheless, the addition of such illustrations can be useful in many cases.

Examples

(1) The picture of a triangular figure might be interpreted as standing for "figure", "triangle" or "scalene triangle".

(2) The various parts of a hammer may be difficult to define exactly and briefly. Less precise definitions, however, would be supplemented with the aid of an illustration.

Diagrams supplementing a definition may outline general characteristics of the class of objects defined.

Examples

The graphical symbol for a transformer; a diagram illustrating the connections between windings in a transformer; the genealogical tree of a system of concepts.

3.65 Principles for defining concepts

When defining concepts the following facts should be kept in mind:

(1) Definition - an aid for selecting a term

An appropriate term for a concept cannot be found until the concept has been clarified and defined.
For clarifying the concept its intension (i.e. its characteristics) and its extension (species on the same abstraction level or its parts) respectively have to be determined.

(2) Dependence of the definition upon the selected system of concepts

Before a concept can be defined its position in an aggregate of related concepts (system of concepts) has to be found. The definition will then indicate the position of the concept on ground of its characteristics.

(3) Concordance of definitions

A definition should fix and if possible express in words the position of the given concept in the system of all related concepts to which it belongs. The definitions of all concepts of a system of concepts should be consistent with one another.

Example: In alphabetical vocabularies the definitions are quite often inconsistent, since they are formulated without considering their interdependence.

(4) Concepts used in a definition

All concepts appearing in a defintion should have been defined in the same or in another reliable publication and reference has to be made to them.

(5) Avoidance of a logical circle

The meaning of one term should not be defined with the aid of another term, the meaning of which is defined with the aid of the first term.

(6) Limitation of the scope of a definition

Sometimes a definition may be applicable only to a limited number of cases, i.e. it may be valid only for a given publication. In that case, it should be explicitely stated that the definition is applicable "for the purpose of this publication (standard, etc.) only".

(7) Precision of the definition

The practical use of a vocabulary should determine the degree of precision sought in the definitions.
Increasing precision may not only involve greater length of the text (more details), but also lead to the use of more specialized and therefore less well known technical terms.

Example: The definition of a mathematical concept will be more precise in a vocabulary of mathematics than in a vocabulary designed for use in secondary schools.

If, for some reason or other, it is not possible to give a precise or complete definition, at least an approximate one should be given instead (explanation).

(8) Conciseness of a definition

A definition of a concept should be as concise as possible.

(9) Unified lexical and syntactic structure of definitions

When formulating a definition the systematic character of terminology and syntax should be observed, i.e. analogous characteristics of concepts should be expressed in a definition by the same lexical means and by syntactic constructions of the same type.

Example lacking the necessary harmonization:

gas laser: A laser, the active medium of which is a gas or a mixture of gases
solid-state laser: A laser the actuating medium of which is a solid
liquid laser: A laser with a liquid active element

3.7 TERMS

This part applies to Indo-European languages in general but in some cases to the English language only.

3.71 General

Thinking is a dynamic process which involves the creation of and the operation with concepts, the assigning of symbols to concepts which represent individual objects or by abstraction comprise a set of individual objects having certain characteristics in common - as well as the recognition of individual objects on grounds of concepts previously formed of these individual objects (see 3.2 and 3.3).
Concepts cannot be perceived by the senses. Thus for communication linguistic symbols are needed which are also individual objects. The relationships between the individual object(s) - concept - symbol concept - linguistic symbols are depicted by Wüster's term model (see 2.22) [32]. The linguistic symbol is a conventional symbol, i.e. its assignment to a concept (as meaning) is agreed upon by society. Linguistic symbols can be: words, terms, ideograms, general signs and symbols, notations, etc.

3.711 The aspect of form in communication - the three types of linguistic symbols

In communication the three most important types of linguistic symbols [33] are:

(1) the word
(2) the term and
(3) the thesaurus word.

Each of these symbols has a special function in the process of communication. The word is a linguistic symbol, which can have a multiplicity of non-defined meanings and of many shades of meanings, or can be used for the designation

of objects. This is the only way to ensure that a word can fulfill its manifold functions in everyday speech, which are to express concrete thoughts and delicate feelings.
The concrete shade of meaning in a given situation is defined by the context in which the word is used. The word is dependent on context. Word form and word content form an inseparable unit. The linguistic symbol of an individual object is a name. Sometimes the name represents a class of individual objects. This is particularly common in economics.

The term, however, is a linguistic symbol which is assigned to one or more concepts, which are defined from neighbouring concepts. It can be a word or a word group. It can also be a letter or graphic symbol, an abbreviation, an acronym, a notation, etc. The concepts exist independently of the terms. They cannot be communicated directly, but need terms as a perceptual medium. It is usually an expert or a commission of experts that assigns a certain term to a concept. For this purpose they either use the external form of a word or of a group of words that already exists or they create a new term out of the external forms of various word elements (roots, affixes), which are the term elements. If a concept to be named in a subject field is assigned as an additional new meaning to a term existing in another subject field, this term is called "transferred term". Between concept and term a lasting connection is made in a very deliberate way, in contrast to the word, in which form and content form a unit and which is formed mostly unconsciously. The term as representative of a concept is dependent on the system of concepts (see 3.52) to which this concept belongs. The term represents also this concept within the subject-context.

The thesaurus word is a word, mostly a term or a name, which is used as a descriptor or non-descriptor for information retrieval.

> A descriptor is a thesaurus word, which is prescribed for use in a certain information system. For this purpose, a term (or a name) is selected from the existing synonyms or quasi-synonyms to represent a certain concept (or an individual object). The meaning of this term is thus fixed for this information system, and may deviate from its general usage within a technical language. For this reason, a thesaurus can never be an accurate tool for technical translations.
>
> A nondescriptor is a thesaurus word having the same meaning as is usual

in communication within the subject field concerned. Its use is not admitted in a certain information system. In a thesaurus entry the nondescriptor is listed with a USE reference to the descriptor to be used (see 4.071.3).

The descriptor has a meaning which is dependent on the information system concerned.

The linguistic symbols of special languages are mostly terms as well as abbreviations, signs and symbols.

In science and technology designations for individual concepts and individual objects are often proper nouns. In some cases such as in biological, chemical, anatomical systems, classes of individual objects are regarded as individual objects. These classes which form systems of terms are called nomenclatures. The elements of nomenclatures are dealt with as proper nouns. In the strict sense only concepts form systems (see 3.52). The terms and other symbols form in general indirect systems, i.e. the terms are assigned members of a system of concepts.

3.72 Constituents of terms and their compounding

In the following a short overview of the constituents of terms and their compounding is given.

3.721 Word elements

A term consists of one or more word elements (morphemes). A word element (morpheme) is the smallest form element which carries a meaning in the linguistic term.

Types of world elements

There are three types of word elements:

(1) Roots

Examples: In the words hold/ing and shap/er the roots are in spaced types. Roots and affixes are separated by oblique strokes.

(2) Affixes

Some terms are derived from others (roots) by addition of affixes. An affix is a suffix or a prefix.

Examples: In the word hold/ing the suffix is in spaced types and separated by an oblique stroke from the root. In the word infra/red the prefix is in spaced types and separated by an oblique stroke from the root.

(3) Endings

A final morpheme of a word which expresses the grammatical inflexion, i.e. the case and number of the nouns, and the tense and mood of the verbs.

Example: in the words gear/s and shap/er/s the morpheme -s indicates the plural.

Some roots can be used as terms by themselves.

Examples: steel, wood, lead

Affixes and endings are not words. For this reason they cannot be used indivudally as terms.

3.722 Words

A word consists of one or more word elements. Depending on the type and number of word elements connected with one another, three types of words exist:

(1) root words
(2) compound words
(3) derivative words

(1) Root words

A root word is a word which consists of the word stem only and has no affixes, but can have endings.

Examples: term, term/s

(2) Compund words

A compound word is a word having more than one root. It can in addition have some affixes and endings.

Examples: slide-way
slideway

(3) Derivative words

A derivative word is the combination of at least one root with at least one affix.

Examples: pre/cede; shap/er

3.723 Word group

A word group is a linguistic expression consisting of several orthographically separated units (words).

Examples:
headless set screw with flat point
conical teeth

3.73 Compounding of word elements

Each compounding of roots expresses one of the four linkages of concepts, i.e. determination, conjunction, disjunction, integration, which are described in 3.412.3 and 3.422.3.

3.731 General

The number of roots in a given language is very small in comparison to the number of concepts for which a term has to be found or constructed. Therefore most terms can only be a compound of word elements or transferred terms.
The compounding of constituents of terms creates a word group (phrase), a compound word or a derivative.
The syntactic linkage of word elements is in conformity with the conceptual linkages mentioned in 3.412.3 (land vehicle (determination); member country (conjunction)).

3.732 Determination (see 3.412.3(1))

In the case of determination the concept represented by an existing term is linked with one or more concepts representing a characteristic or several characteristics which are members of a certain type of characteristics. A species in a horizontal series of concepts is created by the addition of at least one determining concept to its genus.

The genus is called determined member (constituent); the characteristic determining member (constituent).

Example: vehicle land = land vehicle
vehicle = determined member
land = a characteristic of a specific type of characteristics comprising the characteristics land, sea, air, space, etc. (see 3.521(1)). It functions as determining member in this conceptual linkage.

The determined member and the determining member can be linked in the following way:

determined member: box
determining members: which is made of steel,
made of steel,
steel

subclause: box which is made of steel
participle: box made of steel
compound: steel box

When the composition of word elements is chosen as term to be assigned to a concept this term represents a short definition. The word group may represent the complete definition or a slight abbreviation, while the derivative is the shortest form of expressing a concept. The shorter the form is, the less obvious is its meaning. Sometimes a long and short form are used side by side for different purposes.

Example: planing machine (BS) and planer

3.732.1 Parts of speech as determining members

The following parts of speech can be used as determining members:

- preposition : overflowing
- noun : coal miner
- adjective : heavy industry
- verb : go - between
- adverb : hard working
- numeral : one way
- symbol : α-particle
- abbreviation : radar control
- proper noun : Johnson effect

3.732.2 Selection of correct constituents of terms

Care should be taken that the selection of misleading constituents as determining or determined members is avoided.

Examples:

determining member is:

- tautological : gangway
- too narrow : blackboard
- obsolete : gentleman
- not in line with term system : land vehicle, water craft, aircraft, spacecraft

determined member is:

- wrong : blackmail
- metaphoric : silverfish (for lepisma saccharina)
- ambiguous : bookcase
- too narrow : chairman (for chairperson)

3.732.3 Sequence of constituents of terms

It should be kept in mind that the sequence of the constituents of terms determines the meaning.

Examples: aluminium-magnesium alloy
vs. magnesium-aluminium alloy

In metallurgy the main component of an alloy is put in the first position, the alloying component in the second.

3.732.4 Ambiguity caused by two determining members

If a term consisting of several constituents has two determining members, it can be interpreted ambiguously.

Example: silver watch chain
It is not clear if "silver" determines only "watch" or also "chain".

3.732.5 Omission of constituents of terms

Terms consisting of some constituents are frequently abbreviated by dropping an individual constituent. This may give rise to ambiguities:

(1) Omission of determining member
Example: motor car - car
(2) Omission of determined member
Example: tele(vision)

3.733 Conjunction

In the case of conjunction of concepts (see 3.512.3(2)) the two member concepts have equal footing. Therefore if the concept is represented by a combination of the terms of the two concepts the sequence of the two term members is irrelevant.

Example:
composer-conductor
(1) a composer who is also a conductor
(2) a conductor who is also a composer

3.734 Disjunction

In the case of disjunction of concepts (see 3.512.3(3)) the two member concepts have equal footing but exclude each other. The disjunction can be linguistically represented by a word group with "or". In most cases a new term should be coined.

Example: key or cotter (as equivalent of F "clavette" D "Keil")

3.735 Integration

In the case of integration of concepts (see 3.522.3) the two member concepts have equal footing. Integration is represented by a compound word or word group.

Examples:		
	bolt with nut	(technology)
	hydrocarbon	(chemistry)
	Eurasia	(geography)
	twenty five	(mathematics)
	Newtonmeter	(physics)

3.74 Borrowings of terms

3.741 Borrowings from the same language

Sometimes it proves to be useful to attribute a modified meaning to a term current in another subject field provided this field is sufficiently remote to avoid ambiguity. Such a term is called transferred term.

Examples: (1) E head (of a key or cotter) = F talon (heel)
= D Nase (nose)
(2) the terms "information" and "code" were introduced in genetics with modified meanings

A skilfully chosen transferred term may be more concise than a specially constructed complex term.

Example: E golfball = D Kugelkopf (for typewriters)

3.742 Borrowings from foreign languages

Frequently a word or word element is borrowed from a foreign language.

This happens, when for the new concept no term is available or can be easily formed.

There are two approaches:
- Direct transfer of a term as it is
  Example: D Kindergarten = E Kindergarten

- Literal translation:
  Example: E liquid crystal = D Flüssigkeitskristall

3.75 Internationalization of terms /34/

International forms having the same meaning in different languages facilitate technical communication since no knowledge of foreign languages is necessary. They represent the bridge from one national language to the other one. Therefore, this should be kept in mind, particularly when standardizing terminologies for international use. Two forms, graphic and phonetic, are etymologically identical if they are derived from the same basic form. A national form is at the same time international, if there are in several other languages forms etymologically identical with it; especially if all these forms are similar and if the languages belong to different families. There are four categories of international forms.
These are:

(1) Pure Latin (or Greek) words
    Example: omnibus
(2) Nationalized Latin type words
    Example: L caput   E capital, capitalism
(3) Ethnic words internationally accepted
    Example: F chef   E chief D Chef S jefe
(4) Popular variants from ancient roots
    Example: I elettrico (G/ēlectron/, E electric, F électrique
             S eléctrico, D elektrisch)

In general preference should be given to international forms. Having the choice between two synonyms for designating a concept, the one which appears in the same or a similar form in other languages is to be preferred.

Example: E tube or valve
tube should be preferred because of
F tube électronique
I tubo elettronico
S tubo electrónico

3.751 International word elements as term elements

International word elements are roots or affixes derived from ancient (Latin, Greek) or modern languages, which are used with the same meaning in a certain number of different languages. If the characteristics of concepts are represented by international term elements, the international communication is facilitated, since the meaning can be decoded in several linguistic areas. Such elements allow the formation of international terms. This method of term formation above all from Latin and/or Greek roots with or without affixes was used by scholars and scientists during the last centuries.

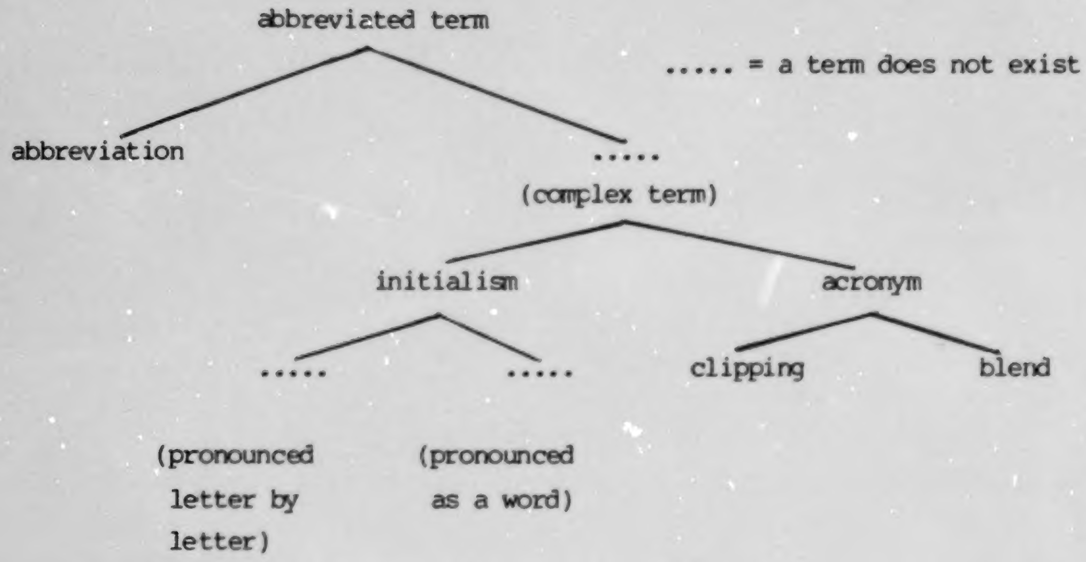
Example:

term element	original word	term
dens (root)	L densare	condenser
-graphy (root)	G graphein	biography
infra (affixe)	L infra	infrared

From the thirties of this century on efforts have been made to elaborate a key to international terminology, which consists of international term elements (roots and affixes). This key should facilitate the formation of international terms /35/.

3.76 Formation of abbreviated terms

Excessive length makes a term difficult to use. Therefore a concept is often designated by an abbreviated form. One can distinguish three types of shortened terms:


abbreviated term
..... = a term does not exist
abbreviation
.....
(complex term)
initialism
acronym
.....
.....
clipping
blend
(pronounced letter by letter)
(pronounced as a word)

Abbreviations

An abbreviation is created when a single term is not written in its full form, but a certain part (a letter or letters) of the term is omitted.

Examples:

full form	abbreviation
page	p.
cosine	cos.
airframe	afme.

Initialisms

Initialisms are created when only the first letter of each term element is used to form a designation. In some cases they can be pronounced like a word, in other cases they are pronounced letter by letter.

Examples:

(1) Complex term (pronounced like a word)
laser = light amplification by stimulated emission of radiation

(2) Complex term (pronounced letter by letter)
ftc = fast time constant

Acronyms

Acronyms are created when the term elements of a complex term are clipped and blended

Examples:

radwaste = radioactive waste
lineac = linear accelerator

3.77 Principles for forming terms

In the following some important principles for forming terms are given.

3.771 Avoidance of ambiguities

In special languages the main effort is directed toward unambiguity This effort should guarantee the communication between specialists and the transfer of knowledge in education. It should avoid misunderstandings and even errors. Communication, however, is only possible if a term is permanently assigned to a concept or vice versa in an unambiguous way (see 3.8). There are the following possibilities of assignments term-concept:

(1) monosemy (see 3.82)
(2) monosemy and at the same time mononymy (see 3.83)
(3) plurivalence (see 3.84)
(4) homonymy (see 3.841)
(5) polysemy (see 3.842)
(6) synonymy (see 3.85)
(7) quasi-synonymy (see 3.851)
(8) mononymy (see 3.86)

3.771.1 Plurivalence (polysemy or homonymy)

The plurivalence of a term gives rise to confusion only, if two conditions occur at the same time:

(1) if the concurrent meanings resemble each other, and
(2) if they frequently occur within the same context, for example, if they are part of the same subject field.

In this case different terms should be found to express the different meanings of the ambiguous terms.

3.771.2 Changes of meanings

It is particularly difficult to secure the general acceptance of changes in meaning. In most cases such a change will merely give rise to ambiguous terms. It is indeed preferable to introduce new terms to denote new concepts. If, in the course of the development of ideas, a technical or scientific term changes its meaning, then the new intension of the concept associated with this term should be carefully and exactly defined. If, inspite of this fact, the term still leads to confusion, a new term should be found.

3.772 Avoidance of synonymy

Synonyms cause confusion and give rise to the false impression that more than one concept exists. For this reason they should be avoided in special languages. Technical communication is a matter of clarity rather than of variety.

3.773 Adherence to established usage

Once a term or concept has been generally accepted it should not be changed without cogent reasons and reasonable prospects of acceptance of the change. In the absence of general acceptance, divergencies in usage would arise leading to new synonyms or ambiguous terms. It should not be overlooked that a great deal of time and endeavour is required to introduce modifications.

3.774 Forming of derivatives

If a new term is needed, it should whenever possible be constructed in such a way as to allow derivatives.

Example:

alcohol - alcoholic, alcoholism, alcoholize
spirit - spirituous (only one derivative)

3.775 Correspondence with the definition

The term should be composed of the most significant characteristics of the concept to be designated. It should not contain elements, which contradict the definition (see 3.732.2 to 3.732.5). Complex terms may be considered equivalent to abridged definitions. They should, of course, not necessarily include each constituent of a combination of concepts shown in the definition, but only those that are needed to distinguish the concept in question from related concepts.

The principles to be followed in forming a complex term are therefore, above all, those governing the formation of definitions and of concepts.

3.776 Systems of terms

The terminology of any field of knowledge should not be an arbitrary collection of terms but if possible a system of terms expressing members of a system of concepts.
The systematic character of the relationships existing between concepts is reflected to a certain extent in the term structure, particularly in the systematic use of term elements.

Example:
diode, triode, tetrode, pentode, etc.

3.777 Transliteration

The necessity can arise in terminological work to represent words, written in one alphabet, by means of another. In this case it is advisable to use the systems of transliteration recommended by the ISO.

ISO R 9	"International system of the transliteration of Slavic Cyrillic characters"
ISO R 233	"International system of transliteration of Arabic characters"
ISO R 259	"Translation for Hebrew"
ISO R 843	"International system for the transliteration of Greek characters"

3.78 Requirements to be met by terms

Terms should:
- be accurate
- be concise

- be easily spelt and pronounced
- allow easily the formation of derivatives
- be linguistically correct

In standards and standard-like documents terms should be in addition, if possible:

- monosemous and at the same time mononymous (see 3.83)
- a member of a term system

If these requirements cannot be met at the same time it should carefully be examined which requirements should be given priority.

3.8 ASSIGNMENT TERM - CONCEPT AND VICE VERSA

3.81 General

While in linguistic word content and word form are regarded as a unit, in terminology concept and designation (=term, symbol, abbreviations) are separated. They form together a terminological unit. A permanent assignment concept - term, which is necessary for communication, is either given by linguistic usage or established deliberately by an act of will by individuals or specialists of terminology commissions.

From this follows that two types of terminology work exist, namely
(1) descriptive terminology work (see 1.04)
(2) prescriptive terminology work (see 1.05)

The task of descriptive terminology work is to find out the existing assignments of terms to concepts in the various subject fields and to investigate the existing relationships of the concepts concerned. Descriptive terminology work is a valuable preliminary stage of prescriptive terminology work. Since uncontrolled development of terminology gives rise to contradictions and inconsistences in terminology, and this would lead finally to a chaotic situation in communication, regulatory measures in terminology have become necessary. Such regulatory measures aim at harmonization and unambiguity of the terminologies of the subject fields. Terminology commissions and standardizing bodies are by definition occupied with prescriptive terminology work.

The following types of assignments term - concept exist:

- monosemy
- monosemy and at the same time mononymy
- plurivalence (homonymy and polysemy)
- synonymy

3.82 Monosemy

monosemy: term - concept assignment, in which one concept only is assigned to a term.

3.83 Monosemy and at the same time mononymy

Unambiguity in communication would require monosemy and at the same time mononymy, i.e. a term - concept assignment, in which one concept only is assigned to one term and one term only to one concept.

The number of roots and affixes in each language, however, which can be used as word elements for the formation of terms, is very small in relation to the number of concepts, which already exists in each subject field and which is increasing at an enormous rate. This is the reason, why mohosemy and at the same time mononymy in the strict sense cannot be achieved in terminology, though it would be the most appropriate method of standardization of terminology.
For reasons of linguistic economy, however, the requirement that a term is unambiguous in a definite context, is to be met in terminology.

3.84 Plurivalence

plurivalence: term - concept assignment, in which identical terms are assigned to several concepts.
Plurivalence can appear as homonymy or polysemy.

3.841 Homonymy

homonymy: term - concept assignment, in which identical terms are assigned to different concepts, which are independent of one another. Homonymy can be divided into homophony (the same phonic form alone) and homography (the same written form alone) or both (full homonyms).

Examples:

- homographes (the same written form)
  tear (verb) - tear (noun)
- homophones (the same phonic form)
  arm (weapon) - arm (part of body)

Homonymes can originate by chance, such as in:
arm (weapon)
arm (part of body)
or by transfer of meaning (polysemes), when a term is borrowed from a different subject field and receives an additional meaning
wing (zoology)
wing (aircraft technology)
or by different combinations of term elements to terminological units.

Example:

rubber-shoe sole   rubber shoe-sole

Usually the word homonym is used only in a restricted sense for homonyms originating by chance. Homonyms originating by transfer of meaning are called polysemes. A special case of homonyms originated by transfer of meaning are the vertical-series homonyms. These are homonyms of which one is a genus and the other one a species or of which one is a whole and the other one a part thereof.

Example:

(1) genus-species
  screw^{I} (external or internal)
  screw^{II} (external)
(2) whole-part
  thread^{A} (totality of the ridges of a screw)
  thread^{B} (one ridge)

3.842 Polysemy

polysemy: term - concept assignment, in which identical terms are assigned to different concepts, which are semantically or etymologically connected.

3.85 Synonymy

synonymy: term - concept assignment, in which two or more different terms are assigned to one concept.

The reasons for the existence of synonyms is mostly the use of equivalent or different characteristics for term formation or a parallel use of terms of different origin, such as:

- a parallel use of a native term with an international term
  Example: matter = substance
- a parallel use of a native term and a borrowed term
  Example: writing desk = bureau
- parallel use of the name of an discoverer (inventor etc.) and an intrinsic (or extrinsic) characteristic as term element
  Example: Johnson effect = heat effect
- parallel use of a term and a symbol (in physics chemistry etc.) or abbreviation
  Example: water = H_2O
  resistance = R
- parallel use of a trade name and a scientific term or a symbol
  Example: aspirin (trade) = acetylsalicylic acid (chemistry) = $C_9H_8O_4$ (symbol)
- parallel use of a general and a scientific term
  Example: headache = cephalgia

It is a great disadvantage in communication if a machine component, an illness, a drug etc. has several names within one linguistic area. Synonymy burdens the memory and gives the appearance as if two concepts were involved.

3.851 Quasisynonyms

If the subject meanings of two synonyms differ slightly this can be due to the fact that one meaning is superordinated to the other one (vertical series synonyms) or the meanings intersect. In this case the synonyms are called quasisynonyms.

Example for vertical series synonyms:

education instruction

3.852 Synonyms with connotation

Two synonyms can have the same subject meaning, the connotation however causes a differentiation.

Examples:

common salt - sodium chloride
terms expressing a different style
(standard technical language, colloquialism):
telephone - phone

3.86 Mononymy

mononymy: term - concept assignment, in which one term only is assigned to a concept.

In terminology standardization, the requirement of mononymy has to be observed.

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PART 4

METHODS OF TERMINOGRAPHY

4 METHODS OF TERMINOGRAPHY

4.00 GENERAL

Terminography is an activity with the purpose of recording assignments term-concept including the positions of concepts in the systems of concepts, i.e. to record terminological data which give a precise description of a concept and of the relationships between a concept and other concepts. To the terminological data other data are associated such as sources, languages symbols (in multilingual records), recorder, data of recording, etc. The terminological data and the associated data make up the terminographical data. The whole set of terminographical data constitutes a terminonological record. Generally speaking terminography is the handling of terminographical data with a view to fix them on a data carrier, whatever this may be.

In the last decades considerable progress was achieved. This was due on the one hand to the development of new methods for recording and updating large quantities of terminological data, on the other hand to the development of new data carriers such as microfiche, magnetic tapes and discs.

In general there are two types of terminography, the terminography which records the usage of terminology as it is (descriptive terminography) and as it ought to be (prescriptive terminography). In addition a type of terminography is used by scientific communities which is based on the idea that scientific concepts are in a constant flux. For them scientific terminology can only be recommended but not prescribed. It is, however, not an end in itself to record terminologies, be they descriptive, prescriptive or recommended; it is a prerequisite for its effective dissemination. The publication of specialized vocabularies and the storage of terminological data as records in data banks is still at a stage which is subject to complaint by the users. New methods of disseminating terminological data will have to be developed with the aid of modern information technology.

In this book examples of terminographical elements and units, which are presently in use in conventional and computerized terminography are presented in order to serve as models for similar terminographic undertakings.

This section deals in particular with

- the selection of terminographical data
- the layout of items of specialized vocabularies or documentation thesauri or of entries of terminological records
- the arrangement of items in specialized vocabularies and in documentation thesauri
- the layout of the various parts of specialized vocabularies or documentation thesauri

The examples given should be regarded as models, which have to be adapted to the intended purposes. Any terminographical undertaking should start with deciding on the terminographical elements which should be recorded. These elements should be as much as possible in line, with international standards in order to facilitate a later data exchange. In any case there is a certain number of data elements which is needed by all user groups and several which are dependent on their application.

4.01 BRIEF HISTORY AND OUTLOOK

At the turn of the century one of the largest private undertakings in terminography was started in Germany. It aimed at the recording of the subject vocabularies of that time. It was directed by A. Schlomann, an engineer, and comprised 17 volumes. The title of these systematic vocabularies which were recorded between 1900 and 1932 was "Illustrierte Technische Wörterbücher/Illustrated technical vocabularies/". They covered 17 technical subject fields in six languages (German, English, French, Italian, Spanish, Russian). They were prepared in co-operation with competent subject specialists and scientific as well as professional associations of many countries.

It was about the same time when the "Verein Deutscher Ingenieure" (VDI) started to compile an alphabetical dictionary "Technolexikon" in three languages (German, English, French). Until 1905 it grew to the size of 3.6 million terminological slips. In 1907 it was estimated by the board of directors of VDI that it will take over 40 years to complete the manuscript with the availabe editorial staff and the same methods applied. On grounds of these facts the work on the Technolexikon was terminated and the work of Schlomann was supported instead, because Schlomann used a more efficient method.

Around the year 1909, the International Electrotechnical Commission (IEC) started to do terminology work. The result of 30 years of work was presented in 1939 in form of a systematic, defined vocabulary in six languages. From 1924 onwards the systematic approach was used; before that the time was wasted with attempts to apply the alphabetic method.

The expertise gained in the projects carried out by Schlomann and the IEC has had a considerable influence on the terminographic principles and guidelines elaborated by ISO/TC 37 /1/. After more than 16 years of joint international work, one of the most advanced works of conventional terminography appeared in 1968. It is based on the expertise of E. Wüster and is entitled "Machine Tool - an interlingual dictionary of basic concepts". The first volume containing the English and French concepts was published in 1968. It was followed by a German supplementary volume in 1969. This dictionary serves as a model for technical vocabularies in general. The methodology is summarized at the beginning of the work by the "Lexicographical notes" which can be considered as a handbook on conventional terminography. The Machine Tool was edited by E. Wüster together with an international group of experts under the auspices of the Economic Commission for Europe of the United Nations /2/. The elaboration of this work put to test the principles and guidelines of ISO/TC 37. This vocabulary with its systematic approach and the inclusion of definitions proves the scientific nature of terminology work.

During the last decade computers have been applied to terminographic work at a growing rate. They have taken over those procedures which are most time consuming and which follow a fixed pattern (e. g. filing according to various aspects). This leads to the development of terminological data banks attempting to assist language mediators and standards organizations in their work. There were three international conferences held on this topic: the first in 1975 on computer-aided lexicography for special languages /3/, the second in 1978 on computer-aided lexicology for special languages /4/ and the third was the First International Conference of Terminological Data Banks /5/. The latter was organized by Infoterm in Vienna in 1979 while the other two took place at the Technical University of Dresden (GDR).

In analogy to the arrangement of items in printed issues of terminologies, one can distinguish between data banks of the vocabulary type (concept oriented) and of the dictionary type (term-oriented). While banks of the vocabulary type are used for scientific pruposes and in terminological standardization of scientific, technical and standards organizations, banks of the dictionary type are used mostly for translation purposes by the language services of large international and national organizations and firms.

The vocabulary type bank corresponds to the terminological vocabulary, the dictionary type bank to the translating dictionary (see 6.211).

In the first case the subject terminologies are stored with an indication of the system of concepts and their relationships (see 3.4), while in the second case only the terms are stored which are assigned to a broad classification of subject fields as it is used in documentation.

The larger the holdings of data are, the more important it is for all banks to store the data on concepts according to a systematic structure based on concept relationships. The maintenance and efficient retrieval of conceptual data from large holdings can be facilitated by this method.

This requires a change of attitudes by the data bank operators similarly to the one that took place in terminography at the turn of the century when the alphabetical method proved no longer as useful for terminology undertakings.

The compilation of an extensive vocabulary can only be managed nowadays by the close collaboration of the pertinent experts of the subject fields, who work in a competent scientific or professional commission with professional terminologists and linguists.

The challenge of the 20th century is the recording of the terminologies of all subject fields in machine-readable form and to keep them up to date. If this challenge is not met by all available means, subject communication is likely to become chaotic.

The growth of the number of new concepts which have to be expressed by terms is due to the rapid increase of new findings and knowledge in all fields of human endeavour. It becomes increasingly difficult to form unambiguous terms from the restricted stock of term elements in each language. The recording of the great amount of data on concepts is an enormous task which can be accomplished only on the basis of planned policies and strategies. For this purpose TermNet, the international network for terminology came into being which is in the process of implementation. Within TermNet Programme 2 (see 1.132) all efforts should be combined to streamline the data flow from the producer to the user of data on concepts. The terminologies should be recorded in machine readable form on tapes or discs for further processing by intermediaries (terminological data banks) or publishing houses (phototype setting), or individual users (mini- or microcomputers). In this respect it will be essential that unified principles of terminology are applied.

Certain initiatives in this respect have been taken already but there is still a lot to be accomplished in order to solve the terminology problem. If the scientific, technical and professional world is willing to make the efforts indicated above it can contribute a lot to the realization of an "informed society".

4.02 APPLICATION OF UNIFIED METHODS

Terminographical methods are designed for the unified recording, processing and presentation of terminographical data (terminological and additional data). The terminographical data are structured according to categories forming larger units (terminographic units) such as items or term records, which are entities of a card file, vocabulary, or terminological data bank. At present large quantities of terminological data of different origin have to be processed and disseminated as well as continually kept up to date by national and international organizations. These data are stored conventionally on cards or sheaved slips or electronically on tapes and discs.

The application of unified data elements, unified lexicographical symbols and unified layouts of items has become a necessity. For this reason standardized methods should be used wherever possible. The methods used by big organizations should be brought in line with international standardized methods as much as possible in order to reduce the editing work of organizations, which combine data from different sources, and carry out international projects and interchange data. The terminographic data should wherever possible, be recorded in machine readable form, so that the desired collection of data can be produced and offered to the user on the required data carrier (paper, microfiche, magnetic tape or disc).

The methods to be used will depend to a large extent on the specific project. A list of literature on methods of terminography is given in Part 7.

4.03 TERMINOGRAPHICAL SYMBOLS

For the characterization of terminological data, such as relationships of concepts, etc. a number of symbols were created which are necessary in terminographic work and can be applied universally. For this purpose ISO 1951 "Lexicographical symbols particularly for use in classified vocabularies" was prepared by ISO/TC 37. This ISO Standard specifies: the form of terms, the form of notes, the separation of synonyms, the comparison of meanings (see 4.032), the references, etc. It is an indispensible tool for terminographical work. For terminography a larger number of symbols are necessary than for lexicography. In order to achieve a unified presentation of terminographical data these symbols should be used as much as possible in terminographical undertakings.
In the following:

- an alphabetical list of letter symbols for languages (ISO/R 639 [6])
- a list of symbols used in Wüster's model vocabulary "The Machine Tool" [7]
- a list of symbols to be used in thesauri (ISO/DIS 2788 [8])

are given.

4.031 Language code* /9/

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ALPHABETICAL LIST
of letter symbols for languages

LISTE ALPHABÉTIQUE
des indicatifs littéraux de langue

Language symbols Indicatifs de langue	Language names Noms des langues		Indices UDC CDU
	English Anglais	French Français	
Af	Afrikaans	Afrikaans	= 393.6
Ar	Arabic	Arabe	= 927
Bg	Bulgarian	Bulgare	= 867
C	Chinese	Chinois	= 951
Ch	Chinese	Chinois	= 951
Cs	Czech	Tchèque	= 850
D	German	Allemand	= 30
Da	Danish	Danois	= 398
De	German	Allemand	= 30
E	English	Anglais	= 20
En	English	Anglais	= 20
Eo	Esperanto	Espéranto	= 089.2
Es	Spanish	Espagnol	= 60
F	French	Français	= 40
Fi	Finnish	Finnois	= 945.41
Fr	French	Français	= 40
G	Greek	Grec	= 75
Gr	Greek	Grec	= 75
He	Hebrew	Hébreu	= 924
Hi	Hindi	Hindi	= 914.3
Hu	Hungarian	Hongrois	= 945.11
I	Italian	Italien	= 50
Ia	Interlingua	Interlingua	= 089.7
Ie	Interlingue (= Occidental)	Interlingue (= Occidental)	= 089.6
In	Indonesian	Indonésien	= 992.21
It	Italian	Italien	= 50
J	Japanese	Japonais	= 956
Ja	Japanese	Japonais	= 956
Ko	Korean	Coréen	= 957
L	Latin	Latin	= 71
La	Latin	Latin	= 71
Nl	Dutch	Néerlandais (Hollandais)	= 393.1
No	Norwegian	Norvégien	= 396
Pl	Polish	Polonais	= 84
Pt	Portuguese	Portugais	= 690
R	Russian	Russe	= 82
Ro	Romanian	Roumain	= 590
Ru	Russian	Russe	= 82
S	Spanish	Espagnol	= 60
Sa	Sanskrit	Sanscrit	= 912.3
Sh	Serbo-Croat	Serbo-croate	= 861/862
Sk	Slovak	Slovaque	= 854
Sn	Slovenian	Slovène	= 863
Sp	Spanish	Espagnol	= 60
Sv	Swedish	Suédois	= 397
Tr	Turkish	Turc	= 943.5
Uk	Ukrainian	Ukrainien	= 83
Ur	Urdu	Urdu	= 914.31

---

* The Draft ISO/DIS 639 "Language code and authority symbols" of 1983 contains the same code however only two digit letter symbols in lower case such as en, fr, ja.

4.032 Symbols for classified vocabularies /10/

SYMBOLS USED IN CONNECTION WITH SYNONYMS (AND QUASI-SYNONYMS)

;	The semi-colon **separates** synonyms (and quasi-synonyms) from one another. Example: *moment of a force; torque* (40).
°, *	The zero and the asterisk placed superscript before a term indicate respectively that the term is either **bad** (°) or merely **proposed** (*). If the term in question is a phrase, the symbol is repeated at the end of the phrase Examples: *garniture (219); *active part* (219).
( )	Round brackets enclose any part of a term which **may, optionally, be omitted.** Example: *(Shore) scleroscope hardness test* (102).
[ ]	Square brackets enclose one or more words which may, alternatively, **replace** one or more preceding words. Example: *claw [dog] clutch* (310).
⌜	This superscript symbol, used in conjunction with square brackets (*see above*), indicates the **limit** of the words which can be replaced by the words enclosed in the square brackets which follow. In the immediately preceding French example (310), for instance, the word *griffes* can be replaced by the word *clabot*, but the entire phrase *embrayage à griffes* cannot.
>	This symbol inserted before a term signifies that the term which follows denotes a **species** (or **specific example**) of the concept defined. Example: *measuring device; > measuring tool* (3).
≫	This symbol inserted before a term signifies that the term is **even more specific** than a synonym preceding it in the same entry and marked by the symbol >. Example: > *cock;* ≫ *plug cock* (142).
<	This symbol inserted before a term signifies that the term which follows is a **generic** one, of which the concept defined is but a species. Example: *toothed gearing; < wheelwork* (374).
><	This symbol inserted before a term signifies that its meaning is **overlapping** with that of the concept defined. Example: *selective interchangeability; >< selective assembly* (202).
>-	This symbol inserted before a term signifies that it represents an object which is only a **part** of the object defined. See the French example opposite.
-<	This symbol inserted before a term signifies that it represents an **aggregate** of which the object defined is only a part. Example: *chip; -< swarf* (1348).

or The word *or* (in *italics*) inserted between two terms indicates the "logical sum" (or common genus) of their meanings.

Example: >*key or* >*cotter* (768), as equivalent of the French term *clavette.*

SYMBOLS USED TO DISTINGUISH TERMS HAVING MORE THAN ONE MEANING

I, II, III, … Roman numerals placed superscript after a word (or both before and after a phrase) signify that it is meant in its **generic** sense ($^{\mathrm{I}}$), in a **more specific** sense ($^{\mathrm{II}}$), or in its **most specific** sense ($^{\mathrm{III}}$). If a term has in the *Vocabulary* **even more specific** senses, they are numbered $^{\mathrm{IV}}$, $^{\mathrm{V}}$, etc.

Examples: *screw*$^{\mathrm{I}}$ (in 634), *screw*$^{\mathrm{II}}$ (634), *screw*$^{\mathrm{III}1}$ (643), *screw*$^{\mathrm{III}2}$ (in 373), *screw*$^{\mathrm{IV}}$ (653); $^{\mathrm{I}}$*rotary pump*$^{\mathrm{I}}$ (151), $^{\mathrm{II}}$*rotary pump*$^{\mathrm{II}}$ (155).

A, B, C, … Capital letters placed superscript after a word (or both before and after a phrase) signify that it is meant to describe an aggregate ($^{\mathrm{A}}$) or only a **part** thereof ($^{\mathrm{B}}$), or even only a **sub-part of the part** ($^{\mathrm{C}}$).

Examples: *eccentric*$^{\mathrm{A}}$ (334), *eccentric*$^{\mathrm{B}}$ (335); $^{\mathrm{A}}$*screw thread*$^{\mathrm{A}}$ (600), $^{\mathrm{B}}$*screw thread*$^{\mathrm{B}}$ (599).

1, 2, 3, … Arabic numerals placed superscript after a term indicate **different meanings,** if the relation between these meanings cannot be covered by the symbols $^{\mathrm{I}}$, $^{\mathrm{II}}$, $^{\mathrm{III}}$, ⋯ and $^{\mathrm{A}}$, $^{\mathrm{B}}$, $^{\mathrm{C}}$, ⋯ above.

Examples: *feed*^{1} (1126), *feed*^{2} (in 1257), *feed*^{3} (1128),… *feed*^{7} (1017); ^{1}*live centre*^{1} (1005), ^{2}*live centre*^{2} (1008).

a, p, s, v, av The lower-case italic letters *a, p, s, v, av* printed after a word mean that the word is respectively an **adjective,** a **participle,** a **noun,** a **verb** or an **adverb.** Such an addition is only made if the same word is used to express two or more of the parts of speech mentioned.

Example: The word **machine** *v* (= "usiner" in French) and **machine** *s* (= "machine" in French) appear as two successive key-words in the *Index* to the English terms

SYMBOLS AND ABBREVIATIONS USED WITH DEFINITIONS

: A colon is used to separate the term defined from the definition itself. It is thus inserted **before every definition.**

Example: **buckling stress**: *The maximum* ⌜*compressive stress* (83) *which an axially loaded rod can take before crumpling abruptly.* (85).

(123) A number printed in round brackets and placed after a term used in a definition **refers** to the definition of this term.

Example: The number "(83)" in the preceding example.

⌜ and ⌝	These symbols, placed superscript and used in conjunction with a reference number enclosed in round brackets, indicate the **limit** of the words to which the reference number applies. In the example given above to illustrate the meaning of the colon symbol : the reference number "(83)" applies to the entire phrase "compressive stress". In the absence of any limiting symbol, the reference number applies only to the word immediately preceding it.
e.g.	The common abbreviation of the phrase: **for instance.**
≠	This symbol is used when it is desired to stress that the term preceding the symbol has **a meaning different from** the term following it.

BRACES USED IN THE ILLUSTRATIONS

493 <	This kind of brace is used to indicate a **genus-species** relationship. The key-number of a generic concept is printed at the apex. The branches point to representations of species of the generic concept. Example: See illustration 492.
220 {	This kind of brace is used to indicate a **whole-and-part** relationship. The key-number of an aggregate (= of the whole) is printed at the apex. The brace encloses representations of parts of the aggregate. Examples: See illustrations 257 and 651.

4.033 Symbols for documentation thesauri [11]

In the following symbols are listed which are to be used in thesaurus construction to denote the hierarchical and associative relationships as well as degrees of equivalence.

4.033.1 Letter symbols

Hierarchical relationships	E	F	D	
	BT	TG	OB	broader term
	NT	TS	UB	narrower term
	BTG	TGG	OA	broader term generic
	NTG	TSG	UA	narrower term generic
	BTP	TGP	SP	broader term partitive
	NTP	TSP	TP	narrower term partitive
Associative relationship	RT	TA	VB	related term
Equivalence relationships				
	USE	EM	BS	use
	UF	EP	BF	used for
	USC		BK	used combination
	UFC		KB	used for combination
Scope note	SN	NE	D	scope note

4.033.2 Graphical symbols

Hierarchical relationships

precedes the broader term
P precedes the broader term (partitive)
precedes the narrower term
P precedes the narrower term (partitive)

Equivalence relationships

= precedes the preferred term
≠ precedes the non-preferred term

Associative relationship

- precedes the related term

Conjunction

& printed between two terms indicates that they should be used in combination to represent a compound concept

4.04 TERMINOGRAPHICAL DATA COLLECTION

Different purposes such as knowledge and technology transfer, editing, translation and interpretation, documentation and information require specific collections of terminographical data on various data carriers. A collection of ordered terminographical data can be a vocabulary, a dictionary, a card file, a terminological data banks, a documentation thesaurus or a specific type of terminology listing. Different types of terminographical data collections can be easily produced by computerized methods (see 4.11).

The basic unit of a terminographical data collection is the item, which consists of terminographical data (terminological and associated data). Since a large number of different types of terminographical data collections exist, only the most important representatives can be presented here. These represented types are intended to serve as a model and can be adapted to the specific needs. Modern computerized terminography (see 4.11) allows the arrangement of terminographical data in any order needed. Furthermore with the aid of computerized term records vocabularies in bookform can be produced within short periods of time. The inclusion of the latest data can be done before phototypesetting.

4.041 Vocabularies

The most important type of terminographical data collection is the specialized vocabulary. This vocabulary has concept-oriented items, i.e. the items follow a classified order according to a system of concepts. All concepts are defined. The conceptual system of a specific field or subfield is reflected in the items, which in their totality make up the vocabulary of this specific field or subfield. In concept-oriented multilingual vocabularies the various items of the same concept in specific languages form monolingual sections in a multilingual item (see 4.072). This type of vocabulary is also called terminological vocabulary or systematic vocabulary.

4.042 Dictionaries

Dictionaries are term oriented. They are translation dictionaries and include the terms of one language with equivalent terms in another or other languages. The item consists of a term with its equivalents in one or more languages. The items follow the alphabetical order of the terms in one language. Translation dictionaries can be complete and reliable only, if they are based on terminological vocabularies. For translation purposes also phraseological dictionaries are in existence. The items of which consist in a set of phraseological units in various languages. These phraseological units represent terminological units.

The dictionary can have explanations of the individual concepts. The explanations are, however, not interrelated in the way as the definitions are in the vocabulary.

4.043 Documentation thesauri

The terminographical data collection of a documentation thesaurus consists of terminological data elements which on the one hand help to control a specific indexing language and which on the other hand indicate the relationships between the concepts (see 3.44). The scope of the descriptor if deviating from the general usage can be explicitly explained by a scope note, by which a narrowing or widening of the meaning is possible.

The multilingual documentation thesaurus is intended for document retrieval by users of various linguistic communities. It cannot be recommended for translation purposes.

4.05 TERMINOGRAPHICAL DATA

The information on concepts can be split up into small units, i.e. terminological data elements.

Terminological data are:

(1) linguistic symbols, which represent the concepts in form of terms, graphic or letter symbols etc. (see 3.7).

(2) linguistic descriptions, which describe the intension (content) of concepts in form of characteristics by means of a definition or explanation (see 3.6).

(3) symbols, which indicate the relationships of a concept to other concepts of a given conceptual field (see 3.4).

The larger the number of terminological data elements is for the terminology to be elaborated, the more useful this terminological record will be.

4.051 Terminological data

As mentioned above, terminological data are the smallest units of information on concepts.

4.051.1 List of important terminological data

(1) Linguistic symbols assigned to a concept

Term* (see 3.7)
synonyms* (if more than one term exists for the concept):
  - preferred term
  - admitted term   specification for standardization
  - deprecated term
  - obsolete term
  - neologism   general specification
abbreviation
symbol (graphic or numeric)

* Capitalization of a term at the beginning of an item indicates that this term begins with a capital letter even when used inside a sentence.

(2) Linguistic description of concept
    definition (see 3.6)
    explanation
    formula
    defining context
    illustration
    example

(3) Relationships between a concept and its neighbouring concepts (see 3.4)
    broader concept (if no difference between genus and whole is made)
    It can be specified in:
    - genus
    - whole
    narrower concept (if no difference between species and part is made)
    It can be specified in:
    - species
    - part
    co-ordinated concepts (if no difference between logical and partitive co-ordination is made)
    It can be specified in:
    - logical co-ordination (see 3.411.3)
    - partitive co-ordination (see 3.421.3)

It should be kept in mind that in computerized terminography it will be necessary to split up complex terms into term elements, which have to be addressable (see 3.73). In particular the preparation of sophisticated alphabetical indexes requires a marking of term elements (see 4.091.3). In multilingual items or term records concepts which correspond partly to each other in compared languages are given as items or term record sections. In this case the degree of coverage of the intension (see 3.31) of two concepts compared in different languages has to be given (= identical, $\times$ intersection, > inclusion, see 3.542).

4.052 Associated data

Associated data are data, which are added to terminological data in order to specify them in linguistic respect, to indicate their origin etc. They may concern the individual data or the item or term record as a whole.

4.052.1 List of possible associated data

(1) Associated data concerning individual terminological data

- authority symbol (term and/or definition, ISO/R 639)
- country symbol (term and/or definition, ISO 3166)
- language symbol (term and/or definition, ISO/R 639)
- field of application of a definition for a specific document
- source (for individual terminological data)
- note (providing additional information on concepts and terms)
- classification symbol (to indicate the place of the concept in a system of concepts)
- subject code (for a group of concepts)
- reliability code (for individual terminological data)

For specific purposes various organizations record a certain number of linguistical or other data such as:

- grammatical features: common noun, proper noun, collective noun, adverb, adjective, masculine, feminine, neuter, singular, plural
- frequency of occurrence: seldom, frequent
- style: jargon, scientific, workshop, etc.
- description of concept by descriptors
- indication of source and target language (for translators)

(2) Associated data concerning the item or the term record

- record identifier
- code for person, who is responsible for the item (term record) or subsequent updatings
- data of establishing or of updatings
- serial number (in vocabulary)

For specific purposes various organizations use a number of documentation or administration data.

For instance for standardization:

- reference number of standard, date of standard
- issue of standard, date of annulation

- correspondence with ISO Standard
- identical term in another standard
- status of standard (draft proposal, preliminary standard, standard)
- Technical Committee responsible, type of standard (terminology or subject standard)

4.053 Minimum set of terminological data

The following terminographic data are recommended as a basic set for a wide range of purposes, including exchange of data. [12]

general data

record identifier
date of (first) record input and/or (latest) updating
record originators

terminological data

subject code
language code
term/s or phrase(s)*)
source) repeatable by language
usage note)
definition/explanation/context)

* Phrase is a terminological unit formed by a word group (verb group) such as "to switch off an apparatus". It is used frequently by translators. It is not a term.

4.06 ITEM

The item is the smallest complete unit of a terminographical data collection (vocabulary, dictionary or thesaurus). It corresponds to the term record in computerized terminography (see 4.112). The item contains all the data either on a single concept (and all the synonymous terms assigned to it) or if in specific cases a lexicographical approach is applied on a single term (and its various meanings). The items of a specific field in their totality make up the vocabulary of this specific field. In concept oriented vocabularies the various monolingual items of the same concept in specific languages may be combined in a multilingual item (see 4.072). In concept oriented vocabularies which are also called terminological vocabularies, the items are not arranged following the alphabetical order of the terms but in accordance with the system of concepts. Term oriented dictionaries are used for translation purposes. They include the terms of one language juxtaposed to terms in another or other languages. The item consists of a term with its equivalents in one or more languages. The items follow the alphabetical order of the terms in one language. Specialized dictionaries can be complete and reliable only if they are based on terminological vocabularies. For translation purposes phraseological dictionaries are in existence the items of which consist in a set of phraseological units in various languages. These phraseological units represent terminological units.

In the sixties various organizations in Europe started to computerize such items with the aim to have on the one hand a quick access to terminological data, which can be kept up to date very easily, and on the other hand to have the possibility to disseminate these data effectively and at low cost (see 4.111).It provides one of the best ways to perform terminographical work quickly and without mistakes. Thus the terminological data bank has become a powerful tool for terminology information and documentation (terminography).The data can be recorded on a worksheet or a slip. When using computer-aided methods the data on worksheets or slips are fed into a computer either online by using a terminal or offline by writing these data in machine readable form.

The slip and the sheaf or cardfile are the basic tools for developing systems of concepts. For this reason they are indispensable for any systematic terminology work. Not all data of the slip will appear in the item. The data structure (format) and sequence of data will vary according to the aim of the terminological tool and the need of its users.

In 4.07 a set of data and the data sequence of the following items are given:

monolingual item of
  - standardized vocabularies
  - non-standardized vocabularies
  - thesauri

multilingual entries of
  - standardized vocabularies
  - non-standardized vocabularies
  - thesauri

These items selected from existing vocabularies or thesauri represent examples or models.

4.07 SEQUENCE OF TERMINOLOGICAL DATA IN AN ITEM

The item comprises all information on a concept (i. e. terminological data) the relationships of this concept to other concepts (other items) and the associated data concerning the concept such as language symbols, sources of terms and definitions, etc. The sequence of terminological data and associated data should follow a preferred order in the printed vocabulary. In the following paragraphs this preferred order is given for a monolingual and for a multilingual item of classified vocabularies as well as for thesauri. In computerized terminography the data are recorded in a sequence, which is dependent on the system. A computer programme can produce any desired sequence of data for a printed vocabulary.

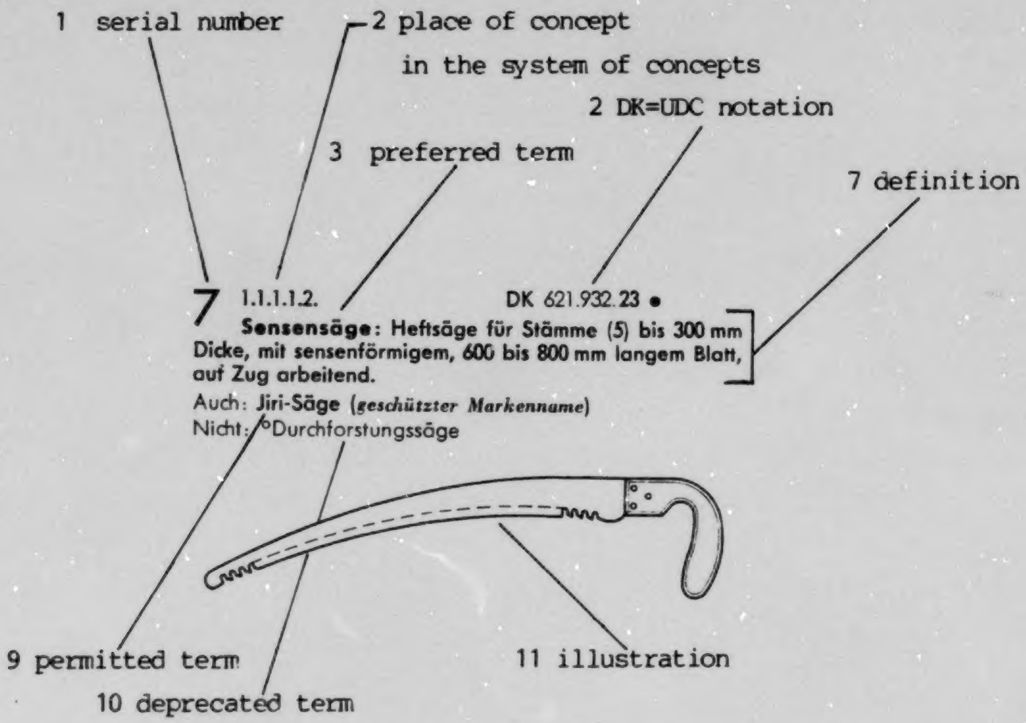
4.071 Monolingual item

4.071.1 Terminology standards

(1) Serial number
(2) classification symbol (for system of concepts)
(3) preferred term
(4) authority or country symbols (for preferred term)
(5) second preferred term (if existent)
(6) authority or country symbols (for second preferred term)
(7) definition (separated by colon from the term(s))
(8) authority symbol (for definition)
(9) permitted term(s)
(10) deprecatd term(s)
(11) illustration

The data elements (4), (6) and (8) are not included if all items are from the same authority (source).

Example from DIN 6493, Blatt 1 1964 (preliminary standard) [13]



7 1.1.1.1.2. DK 621.932.23 ●

Sensensäge: Heftsäge für Stämme (5) bis 300 mm Dicke, mit sensenförmigem, 600 bis 800 mm langem Blatt, auf Zug arbeitend.

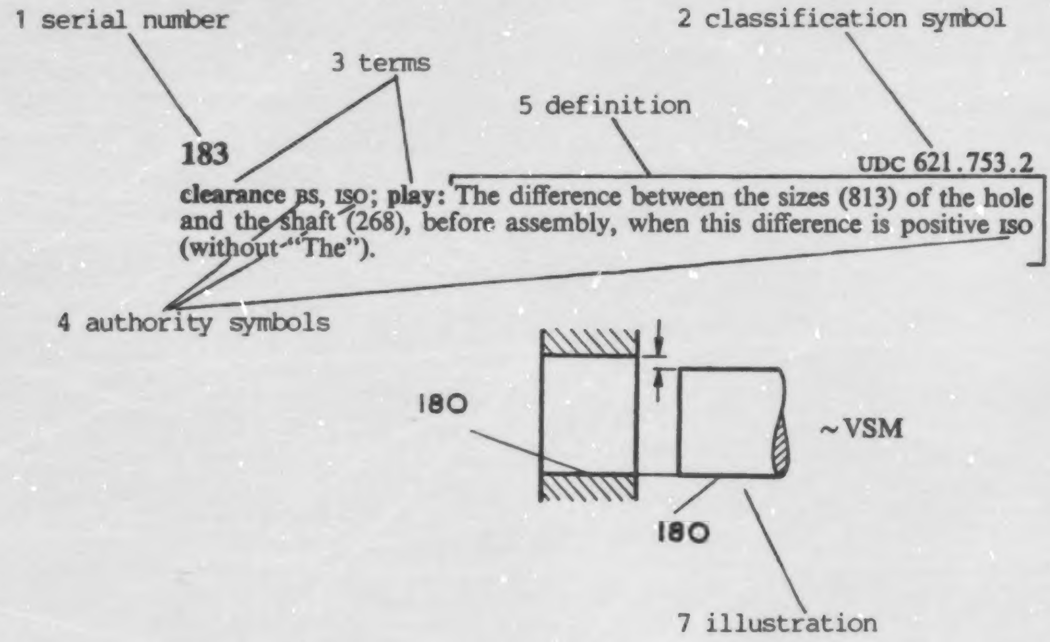
Auch: Jiri-Säge (*geschützter Markenname*)
Nicht: °Durchforstungssäge

1 serial number
2 place of concept in the system of concepts
2 DK=UDC notation
3 preferred term
7 definition
9 permitted term
10 deprecated term
11 illustration

4.071.2 Non-standardized vocabularies

(1) serial number
(2) classification symbol
(3) term(s)
(4) authority or country symbols for term(s)
(5) definition or explanation (separated by a colon from term(s))
(6) obsolete term
(7) illustration

Example: The Machine Tool /14/



183 UDC 621.753.2

clearance BS, ISO; **play**: The difference between the sizes (813) of the hole and the shaft (268), before assembly, when this difference is positive ISO (without "The").

1 serial number
2 classification symbol
3 terms
5 definition
4 authority symbols
180
~VSM
180
7 illustration

4.071.3 Monolingual thesauri

Thesaurus items can be constructed in various ways. They should, however, comprise the following basic data elements:

For Descriptors

(1) Descriptor
(2) Scope note (narrowing or broadening of the concept)
(3) "USED FOR" references
(4) Broader term (BT)
(5) Other broader terms (of various levels)
(6) Narrower term (NT)
(7) Other narrower terms (of various levels)
(8) Related terms (RT)

For Non-descriptors

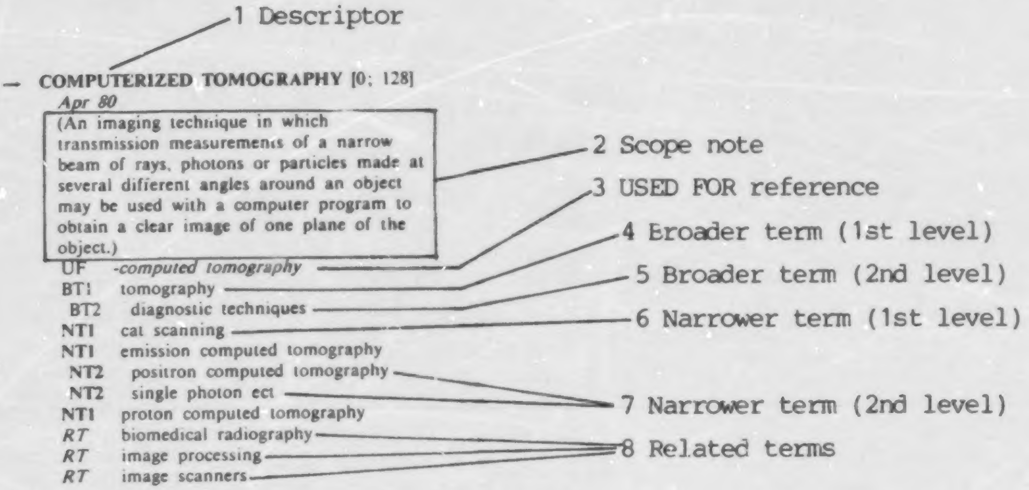
(1) Non-descriptor
(2) "USE" reference

Example 1 (possible data elements)

DESCRIPTOR
SC Scope note (narrowing or broadening of the concept)
UF Non-descriptor
BT 1 Broader term (1st level)
 BT 2 Broader term (2nd level)
  BT 3 ...
   etc.
NT 1 Narrower term (1st level)
 NT 2 Narrower term (2nd level)
  NT 3 ...
   etc.
RT Related term

Example 2: INIS Thesaurus (IAEA-INIS-13 (Rev 19)) [15]

Item of descriptor

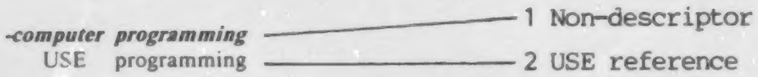


– **COMPUTERIZED TOMOGRAPHY** [0; 128]
Apr 80
(An imaging technique in which transmission measurements of a narrow beam of rays, photons or particles made at several different angles around an object may be used with a computer program to obtain a clear image of one plane of the object.)

UF	*-computed tomography*
BT1	tomography
BT2	diagnostic techniques
NT1	cat scanning
NT1	emission computed tomography
NT2	positron computed tomography
NT2	single photon ect
NT1	proton computed tomography
RT	biomedical radiography
RT	image processing
RT	image scanners

1 Descriptor
2 Scope note
3 USED FOR reference
4 Broader term (1st level)
5 Broader term (2nd level)
6 Narrower term (1st level)
7 Narrower term (2nd level)
8 Related terms

Item of non-descriptor



-computer programming
USE programming

1 Non-descriptor
2 USE reference

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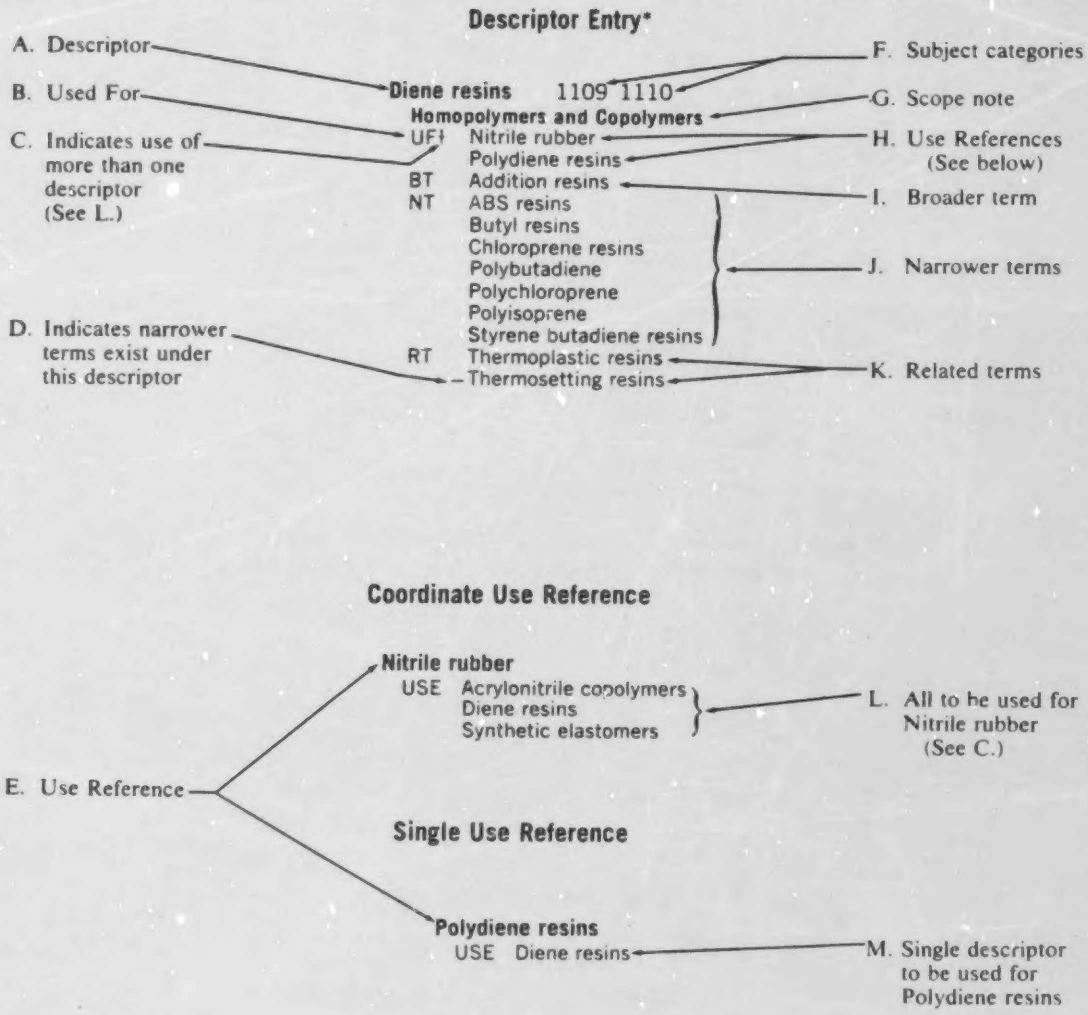
Example 3: Thesaurus of engineering and scientific terms [16]


Descriptor Entry*
A. Descriptor
B. Used For
C. Indicates use of more than one descriptor (See L.)
D. Indicates narrower terms exist under this descriptor
Diene resins 1109 1110
Homopolymers and Copolymers
UF† Nitrile rubber
Polydiene resins
BT Addition resins
NT ABS resins
Butyl resins
Chloroprene resins
Polybutadiene
Polychloroprene
Polyisoprene
Styrene butadiene resins
RT Thermoplastic resins
–Thermosetting resins
F. Subject categories
G. Scope note
H. Use References (See below)
I. Broader term
J. Narrower terms
K. Related terms
Coordinate Use Reference
Nitrile rubber
USE Acrylonitrile copolymers
Diene resins
Synthetic elastomers
L. All to be used for Nitrile rubber (See C.)
E. Use Reference
Single Use Reference
Polydiene resins
USE Diene resins
M. Single descriptor to be used for Polydiene resins

---

*This example has been slightly modified from the official entry of *Diene resins* in order to display all situations.

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Example 4: Root Thesaurus, British Standards Institution /17/

Subject display contents list

O	**Military technology**	409
P	**Production engineering**	410
PC/PO	Production processes	410
PP/PX	Production equipment	416
PY	Production materials	425
Q	**Transport engineering**	427
QB	Transportation	427
QBV	Vehicles	428
QC/QD	Road vehicle engineering	429
QE	Railway engineering	431
QF	Water transport engineering	434
QG	Hovercraft engineering	436
QI	Air transport engineering	436
QK	Space technology	438
QM/QN	Vehicle components	439
QP/QY	Materials handling	444
R	**Construction**	459
RB/RE	Construction works	459
RF/RN	Construction systems	472
RO/RS	Construction systems parts	498
RU/RV	Construction equipment	516
RXB/RXF	Construction operations	518
RXH	Construction materials	520

Subject display schedules

QK **Space technology**

=Astronautics

*—Air transport engineering QI

*—Space safety GQT

*—Space sciences EA

*—Space technology components QNQ

*—Space transport QBG.G

*—Spacecraft navigation MDO

(By vehicle)

QKK **Spacecraft**

=Rockets (spacecraft)

*<Vehicles QBV

*>Guided missiles ODM

*—Rocket engines NGG.R

*—Trajectories CKE.KC

QKK **Spacecraft** (continued)
QKK.D Artificial satellites
=Reconnaissance satellites
=Satellites (artificial)
*−Satellite links LLP.BM
QKK.DD Space stations
=Space platforms
=Stations (space)
QKK.K Space vehicles
*−Tracking MDX
QKK.KG Space capsules
QKK.KK Space probes
=Probes (space)
QKK.Q Re-entry vehicles

(By ground service)

QKQ **Space centres (ground)**
=Launching facilities (aerospace)
=Launching sites (aerospace)
*<Transport facilities (construction works) RBF.K

Alphabetical list

Space technology QK
= Astronautics
− Space centres (ground)
− Spacecraft
*− Air transport engineering QI
*− Space safety GQT
*− Space sciences EA
*− Space technology components QNQ
*− Space transport QBG.G
*− Spacecraft navigation MDO

Space technology components QNQ
< Vehicle components
> Spacecraft heat shields
> Spacecraft instruments
*− Space technology QK

Space transport QBG.G
< Aerospace transport
*− Space safety GQT
*− Space technology QK

Space vehicles QKK.K
< Spacecraft
> Space capsules
> Space probes
*− Tracking MDX

Spacecraft QKK
= Rockets (spacecraft)
> Artificial satellites
> Re-entry vehicles
> Space vehicles
− Space technology
*< Vehicles QBV
*> Guided missiles ODM
*− Rocket engines NGG.R
*− Trajectories CKE.KC

4.072 Multilingual item

A multilingual concept-oriented item of a vocabulary consists of monolingual sections, which can be arranged in the item vertically or horizontally.

Examples for concept oriented items

(1) Vocabulary (vertical arrangement)

	Concept number	Example
		05-20-250
First language Section	language symbol; term; definition or explanation; synonym	E voltage: The line integral .. - potential difference
Second language Section	language symbol; term; definition or explanation; synonym	F tension: Integral de ligne .. - différence de potentiel
Third language Section	language symbol	....

(2) Vocabulary (horizontal arrangement) with two definition languages

Concept number

first language	second language	other languages
language symbol; term; definition or explanation; (synonym)	language symbol; term; definition or explanation; (synonym)	language symbol; term; (synonym); language symbol; term; (synonym); language symbol; term (synonym)

A multilingual term-oriented item of a dictionary consists of concept parts.

Example for term-oriented item:

	language symbol; term	Example
		F champ
Concept/meaning 1	1 explanation;	1 (sens qualitatif)
	language symbol; term;	D Feld; Feldraum
	synonym	
Concept/meaning 2	2 explanation	2 (sens quantitatif)
	language symbol; term	D Feld; Feldgröße
	synonym	

4.072.1 Multilingual terminology standards

The data elements of a multilingual item are:

- serial number,
- classification symbol (for system of concepts)

These data are followed by blocks of data (sections) for each individual language within a multilingual item. They consist of:

(1) language symbol
(2) preferred term
(3) authority or country symbols (for preferred term)
(4) second preferred term (if existent)
(5) authority or country symbols (for second preferred term)
(6) definition (separated by colon from the term(s))
(7) authority symbol (for definition)
(8) permitted terms
(9) deprecated terms

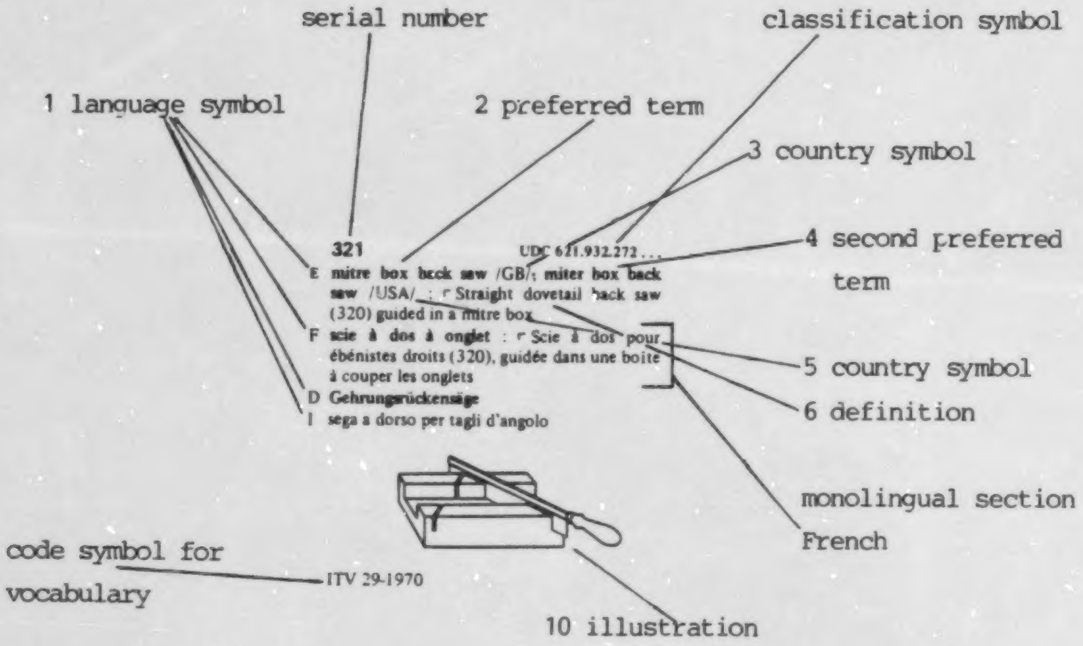
For all sections

- illustration

The data elements (3), (5) and (7) are not included, if there is one authority only.

Example 1: ISO/R 1149 /18/

Item with vertically arranged monolingual sections


serial number
classification symbol
1 language symbol
2 preferred term
3 country symbol
4 second preferred term
5 country symbol
6 definition
monolingual section French
code symbol for vocabulary
10 illustration

321 UDC 621.932.272 . . .

E **mitre box back saw** /GB/; **miter box back saw** /USA/ : ⌐ Straight dovetail back saw (320) guided in a mitre box

F **scie à dos à onglet** : ⌐ Scie à dos pour ébénistes droits (320), guidée dans une boite à couper les onglets

D **Gehrungsrückensäge**

I sega a dorso per tagli d'angolo

ITV 29-1970

Example 2: International Electrotechnical Vocabulary (IEV) item 391-05.-03 published by International Electrotechnical Commission (IEC) /19/

Item with horizontally arranged monolingual sections

391-05-03

semi-conducteur compensé

Semi-conducteur dans lequel les effets des impuretés d'un type donné sur le nombre volumique des *porteurs de charge* sont partiellement ou totalement annulés par les effets des impuretés du type opposé. Un tel semi-conducteur a des propriétés voisines de celles d'un *semi-conducteur intrinsèque*.

compensated semiconductor

A *semiconductor* in which the effects of the impurities of a given type on the *charge carrier* density partially or completely cancel those of the other type. Such a semiconductor has properties which are similar to those of an *intrinsic semiconductor*.

скомпенсированный полупроводник

Полупроводник, в котором влияние примесей данного типа на концентрацию *носителей заряда* частично или полностью компенсируется примесями другого типа. Свойства такого полупроводника подобны свойствам *собственного полупроводника*.

kompensierter Halbleiter
semiconductor compensado
semiconduttore compensato
gecompenseerde halfgeleider
półprzewodnik skompensowany
kompenserad halvledare

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4.072.2 Multilingual non-standardized vocabularies

The data elements of a multilingual item are:

- serial number,
- classification symbol (for system of concepts)

These data are followed by blocks of data (sections) for each individual language within a multilingual item. They consist of:

(1) language symbol
(2) terms (including standardized terms)
(3) authority or country symbols (for standardized terms)
(4) definition or explanation (separated by a colon from term(s))
(5) authority symbol (if taken from a standardized vocabulary)
(6) deprecated term(s)

For all sections

- illustration

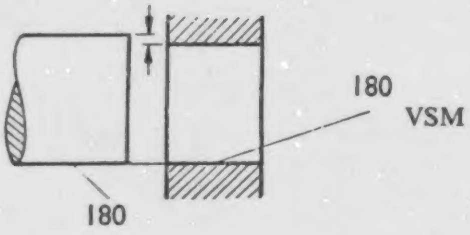
Vertical arrangement

Example 1: The Machine Tool, UN/ECE [20]

186 UDC 621.753.2

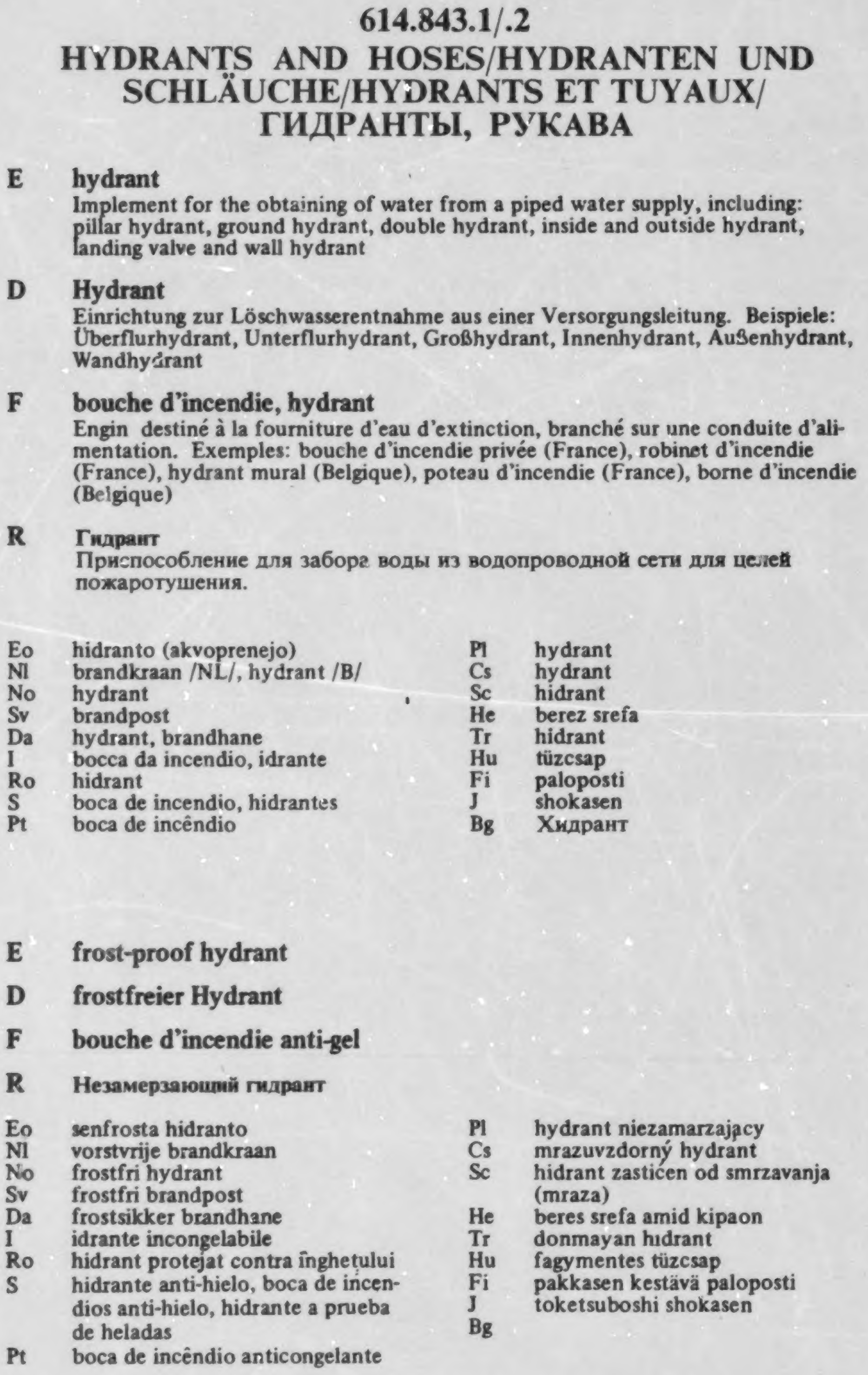
interference BS, ISO: The magnitude of the difference between the sizes (813) of the hole and the shaft (268), before assembly, when this difference is negative ISO (without "The").

serrage^2 ISO, VSM: Valeur absolue de la différence entre les dimensions (813), avant assemblage, de l'alésage et de l'arbre (268), lorsque cette différence est négative ISO.



186 **Übermaß** DIN, ISA, VSM

Example 2: International Technical Fire Service Dictionary, UNISAF /21/



614.843.1/.2

HYDRANTS AND HOSES/HYDRANTEN UND SCHLÄUCHE/HYDRANTS ET TUYAUX/ ГИДРАНТЫ, РУКАВА

E **hydrant**
Implement for the obtaining of water from a piped water supply, including: pillar hydrant, ground hydrant, double hydrant, inside and outside hydrant, landing valve and wall hydrant

D **Hydrant**
Einrichtung zur Löschwasserentnahme aus einer Versorgungsleitung. Beispiele: Überflurhydrant, Unterflurhydrant, Großhydrant, Innenhydrant, Außenhydrant, Wandhydrant

F **bouche d'incendie, hydrant**
Engin destiné à la fourniture d'eau d'extinction, branché sur une conduite d'alimentation. Exemples: bouche d'incendie privée (France), robinet d'incendie (France), hydrant mural (Belgique), poteau d'incendie (France), borne d'incendie (Belgique)

R **Гидрант**
Приспособление для забора воды из водопроводной сети для целей пожаротушения.

Eo	hidranto (akvoprenejo)	Pl	hydrant
Nl	brandkraan /NL/, hydrant /B/	Cs	hydrant
No	hydrant	Sc	hidrant
Sv	brandpost	He	berez srefa
Da	hydrant, brandhane	Tr	hidrant
I	bocca da incendio, idrante	Hu	tüzcsap
Ro	hidrant	Fi	paloposti
S	boca de incendio, hidrantes	J	shokasen
Pt	boca de incêndio	Bg	Хидрант

E **frost-proof hydrant**

D **frostfreier Hydrant**

F **bouche d'incendie anti-gel**

R **Незамерзающий гидрант**

Eo	senfrosta hidranto	Pl	hydrant niezamarzający
Nl	vorstvrije brandkraan	Cs	mrazuvzdorný hydrant
No	frostfri hydrant	Sc	hidrant zastićen od smrzavanja (mraza)
Sv	frostfri brandpost		
Da	frostsikker brandhane	He	beres srefa amid kipaon
I	idrante incongelabile	Tr	donmayan hıdrant
Ro	hidrant protejat contra înghetului	Hu	fagymentes tüzcsap
S	hidrante anti-hielo, boca de incendios anti-hielo, hidrante a prueba de heladas	Fi	pakkasen kestävä paloposti
		J	toketsuboshi shokasen
		Bg	
Pt	boca de incêndio anticongelante		

Horizontal arrangement

Example 1: New International Dictionary of Refrigeration, International Institute of Refrigeration [22]
(For reasons concerning the layout, the item was separated)

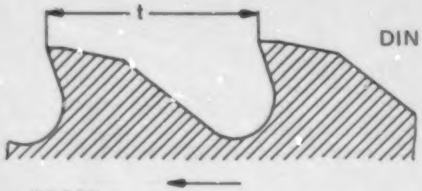
P2.2	**Superconductor** Substance exhibiting or capable of exhibiting *superconduction.*	**Supraconducteur** Substance présentant ou susceptible de présenter le phénomène de *supraconduction.*

Сверхпроводник	**Supraleiter**	**Superconductor**	**Superconduttore**	**Supraleder**	P2.2

Example 2: Dictionary of Production Engineering, CIRP [23]
(For reasons concerning the layout, the item was separated)

62 240 **Zahnteilung (t)**
tooth pitch
pas (m) de dents

DIN 1416



s. 62 230

Zahnteilung (t) ist der Abstand zweier aufeinanderfolgender Zähne.	The distance between two successive cutting edges measured in the direction of the cut. Tooth pitch (t).	Distance entre les arêtes de coupe de deux dents consécutives. Pas (t).

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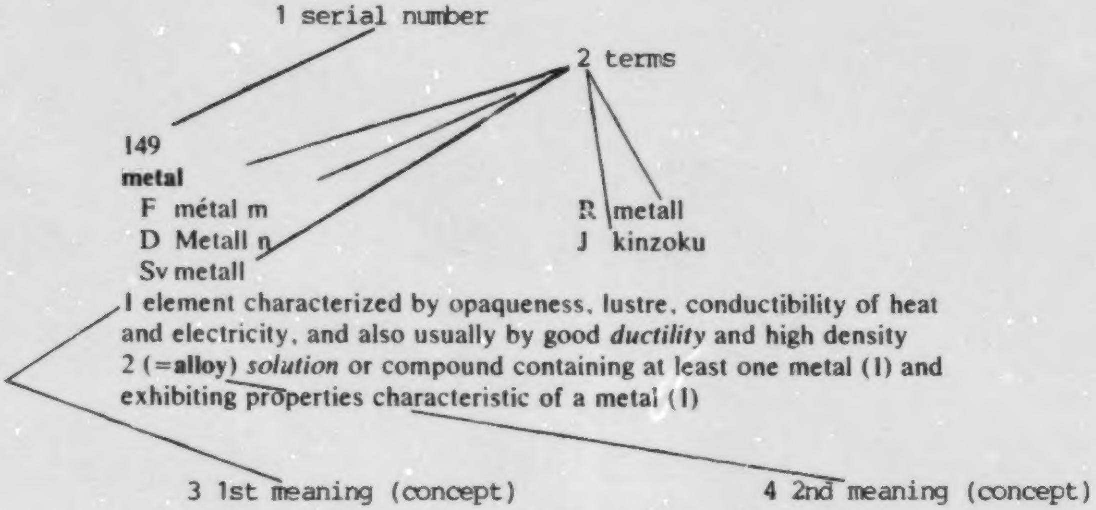
4.072.3 Multilingual dictionaries

Example: Glossary of heat treatment /24/

Term oriented item



149
metal
F métal m
D Metall n
Sv metall
R metall
J kinzoku
1 element characterized by opaqueness, lustre, conductibility of heat and electricity, and also usually by good *ductility* and high density
2 (=**alloy**) *solution* or compound containing at least one metal (1) and exhibiting properties characteristic of a metal (1)

4.072.4 Multilingual thesauri

The items of a multilingual thesaurus contain for each language data elements which are listed under 4.071.3 (monolingual thesauri). The concepts of the descriptors in various languages are linked. In most cases they do not coincide (see 3.542). For this reason in ISO/DIS 5964 /25/ methods are given for establishing a concept equivalency. Other data elements (such as broader, narrower or related concepts) can be equivalent in the languages compared or they can differ or be missing at all. The descriptors of the various languages are only juxtaposed in a multilingual thesaurus. There are two ways of arranging the item: in alphabetical or in classified order.

Example 1: ISO/DIS 5964 /26/

Alphabetical arrangement, with equivalents for all preferred terms in parallel columns (English as filing language)

AEROPLANES	AVION	MOTORFLUGZEUG
SN fixed-wing, powered, heavier-than-air aircraft	*NE* aéronef plus lourd que l'air, propulsé, à aile fixe	*D* nur für Luftfahrzeuge mit befestigten Flügeln, die schwerer als Luft sind
BT FIXED-WING AIRCRAFT	*TG* AERONEF A AILE FIXE	*OB* FLUGZEUG
NT FREIGHT AEROPLANES JET AEROPLANES	*TS* AVION CARGO AVION A REACTION	*UB* FRACHTFLUGZEUG DÜSENFLUGZEUG
Aerostats *USE* LIGHTER-THAN-AIR AIRCRAFT		

Example 2: ISO/DIS 5964 [27]

Alphabetical arrangement in a single column with foreign equivalents side by side

English

AEROPLANES *D:* MOTORFLUGZEUG *F:* AVION
SN fixed-wing, powered, heavier-than-air aircraft
BT FIXED-WING AIRCRAFT *D:* FLUGZEUG *F:* AERONEF A AILE FIXE
NT FREIGHT AEROPLANES *D:* FRACHTFLUGZEUG *F:* AVION CARGO
JET AEROPLANES *D:* DÜSENFLUGZEUG *F:* AVION A REACTION
Aerostats *USE* LIGHTER-THAN-AIR AIRCRAFT

Example 3: ISO/DIS 5964 [28]
Systematic display with parallel monolingual sections and separate alphabetic indexes for each language

201	VEHICLES	VEHICULE	FAHRZEUG
202	AIRCRAFT	AERONEF	LUFTFAHRZEUG
203	HEAVIER-THAN-AIR AIRCRAFT	AERONEF PLUS LOURD QUE L'AIR	LUFTFAHRZEUG SCHWERER ALS LUFT
	UF Aerodynes		
	RT AVIATION 271	*VA* AVIATION	*VB* AVIATIK
204	FIXED-WING AIRCRAFT	AERONEF A AILE FIXE	FLUGZEUG
205	AEROPLANES	AVION	MOTORFLUGZEUG
	SN fixed-wing, powered, heavier-than-air aircraft	*NE* aéronef plus lourd que l'air, propulsé, à aile fixe	*D* nur für Luftfahrzeuge mit befestigten Flügeln, die schwerer als Luft sind
206	FREIGHT AEROPLANES	AVION CARGO	FRACHTFLUGZEUG
	RT FREIGHT 292	*VA* FRET	*VB* FRACHT
207	JET AEROPLANES	AVION A REACTION	DÜSENFLUGZEUG
208	GLIDERS	PLANEUR	SEGELFLUGZEUG
			BF Gleitflugzeug
	RT GLIDING 275	*VA* VOL A VOILE	*VB* GLEITFLUG
209	HELICOPTERS	HELICOPTERE	HUBSCHRAUBER
210	LIGHTER-THAN-AIR AIRCRAFT	AEROSTAT	AEROSTAT
	UF Aerostats		
211	AIRSHIPS	DIRIGEABLE	LUFTSCHIFF
212	MILITARY AIRCRAFT	AERONEF MILITAIRE	MILITARLUFTFAHRZEUG

.
.
.
.

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Example 4: ISO/DIS 5964 [29]
Systematic display in one language with alphabetical index in the same language and equivalents in other languages.

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- 201 VEHICLES
  - 202 AIRCRAFT
    - 203 HEAVIER-THAN-AIR AIRCRAFT
      - *UF* Aerodynes
      - *RT* AVIATION 271
      - 204 FIXED-WING AIRCRAFT
        - 205 AEROPLANES
          - *SN* fixed-wing, powered, heavier-than-air aircraft
          - 206 FREIGHT AEROPLANES
            - *RT* FREIGHT 292
          - 207 JET AEROPLANES
        - 208 GLIDERS
          - *RT* GLIDING 275
      - 209 HELICOPTERS
    - 210 LIGHTER-THAN-AIR AIRCRAFT
      - *UF* Aerostats
      - 211 AIRSHIPS
    - 212 MILITARY AIRCRAFT

Aerodynes *USE* HEAVIER-THAN-AIR AIRCRAFT
AEROPLANES 205
D: MOTORFLUGZEUG
F: AVION
SN fixed-wing, powered, heavier-than-air aircraft
Aerostats *USE* LIGHTER-THAN-AIR AIRCRAFT
AIRCRAFT 202
D: LUFTFAHRZEUG
F: AERONEF
AIRSHIPS 211
D: LUFTSCHIFF
F: DIRIGEABLE
AVIATION 271
D: AVIATIK
F: AVIATION
RT HEAVIER-THAN-AIR AIRCRAFT
Cargo *USE* FREIGHT
FIXED-WING AIRCRAFT 204
D: FLUGZEUG
F: AERONEF A AILE FIXE
FREIGHT 292
D: FRACHT
F: FRET
UF Cargo
RT FREIGHT AEROPLANES
FREIGHT AEROPLANES 206
D: FRACHTFLUGZEUG
F: AVION CARGO
RT FREIGHT

GLIDERS 208
D: SEGELFLUGZEUG
F: PLANEUR
RT GLIDING
GLIDING 275
D: GLEITFLUG
F: VOL A VOILE
RT GLIDERS
HEAVIER-THAN-AIR AIRCRAFT 203
D: LUFTFAHRZEUG SCHWERER ALS LUFT
F: AERONEF PLUS LOURD QUE L'AIR
UF Aerodynes
RT AVIATION
HELICOPTERS 209
D: HUBSCHRAUBER
F: HELICOPTERE
JET AEROPLANES 207
D: DÜSENFLUGZEUG
F: AVION A REACTION
LIGHTER-THAN-AIR AIRCRAFT 210
D: AEROSTAT
F: AEROSTAT
UF Aerostats
MILITARY AIRCRAFT 212
D: MILITÄRLUFTFAHRZEUG
F: AERONEF MILITAIRE
VEHICLES 201
D: FAHRZEUG
F: VEHICULE

4.073 A comparison between terminological vocabulary and documentation thesaurus

Vocabulary

TV: The entire system of concepts in a certain subject field (or parts thereof) has to be represented by terms and kept up to date.

DT: Only those concepts are incorporated as descriptors or nondescriptors which are needed for the search strategy. In a thesaurus, the descriptors are regularly checked in regard to their frequency of use, their change of meaning, and their relations to other concepts. From time to time new concepts have to be added as well.

Intension of concept (meaning)

TV: A concept is clearly delimited from its neighbouring concepts. It is either described or prescribed by a definition or explanation.

DT: If required by the information system concerned, the intension of the concept (meaning) can be narrowed or broadened. The meaning of a concept in question either is determined by a scope note or can be determined from its broader and narrower concepts.

Broader and narrower concepts

TV: There is a clear distinction between a generic and a partitive broader concept, as well as between a generic and a partitive narrower concept.

DT: In thesauri no distinction between "generic" and "partitive" is usually made.

Relations between concepts

TV: Neighbouring concepts are clearly delimited from each other. Within a system of concepts, no level of abstraction or division can be omitted.

DT: In a thesaurus a broader concept is frequently given, which belongs to any higher level of the vertical series of concepts. Concepts are in most cases just loosely connected to each other.

Schemes of concepts/Graphic displays

TV: The logical and ontological relations of concepts are depicted by a scheme of concepts in a most unambiguous way. Logical relations exist between genus and species, and ontological relations exist between whole concepts and partitive concepts.

DT: The loose connections between the concepts of descriptors are depicted by graphic displays (arrowgraphs, concentric circles, clusters, coordinate grid systems).

Associative relations

TV: In a terminological vocabulary, associative relations of concepts do not exist, because they are too general. These relations of concepts are specified as co-ordinate relations or diagonal relations as well as relations of cause – effect, of material – product etc.

Example: land | vehicle ‖ sea | craft (co-ordinate relation)
sailboat / aircraft (diagonal relation)

DT: The thesaurus entry includes a list of related concepts (RT).

Representation of a concept by the combination of several descriptors

TV: Not possible.

DT: In order to keep the number of descriptor concepts to a minimum, one can form a concept to be included in the thesaurus by combining several descriptors already used (post-coordination).

Example: tramway = railway + urban traffic

4.08 SEQUENCE OF ITEMS

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The smallest unit of a terminographical data collection is the item. For the filing of items in the terminographical data collection, ordering elements are used. The ordering element of an item can be a concept (classification symbol, which indicates the place of the concept in the system of concepts) or a term (which is filed with the other terms in alphabetical order).

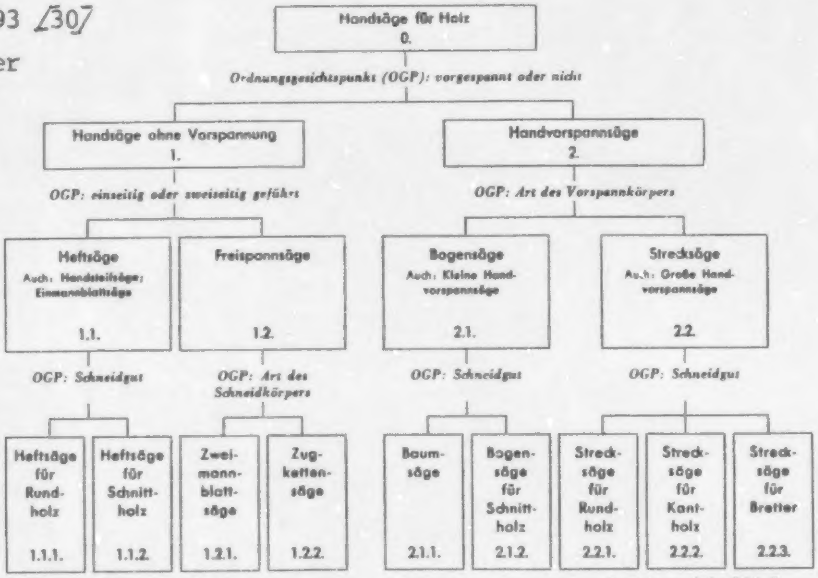
Sometimes the items of a subject field or subfield can be arranged only partly in a classified order. In this case a number of items are combined in a group. The individual groups follow in a classified order. Within the group the items are arranged in alphabetical order of the terms which serve as ordering element.

4.081 Monolingual terminographical data collections

4.081.1 Monolingual vocabularies (concept oriented items)

A monolingual vocabulary is a collection of concept-oriented items in one language, the ordering elements of which are classification symbols. The items follow a classified order.

Example 1: DIN 6493 /30/
Classified order


Handsäge für Holz
0.
Ordnungsgesichtspunkt (OGP): vorgespannt oder nicht
Handsäge ohne Vorspannung
1.
Handvorspannsäge
2.
OGP: einseitig oder zweiseitig geführt
OGP: Art des Vorspannkörpers
Heftsäge
Auch: Handsteifsäge; Einmannblattsäge
1.1.
Freispannsäge
1.2.
Bogensäge
Auch: Kleine Handvorspannsäge
2.1.
Strecksäge
Auch: Große Handvorspannsäge
2.2.
OGP: Schneidgut
OGP: Art des Schneidkörpers
OGP: Schneidgut
OGP: Schneidgut
Heftsäge für Rundholz
1.1.1.
Heftsäge für Schnittholz
1.1.2.
Zweimannblattsäge
1.2.1.
Zugkettensäge
1.2.2.
Baumsäge
2.1.1.
Bogensäge für Schnittholz
2.1.2.
Strecksäge für Rundholz
2.2.1.
Strecksäge für Kantholz
2.2.2.
Strecksäge für Bretter
2.2.3.

Weitere Unterteilung siehe bei den Wortstellen mit um eine oder mehrere Stellen längeren Ordnungsnummern.

Fortsetzung Seite 2 bis 8
Stichwortverzeichnis Seite 9
Erläuterungen Seite 10 und 11

Fachnormenausschuß Werkzeuge und Spannzeuge im Deutschen Normenausschuß (DNA)
Fachnormenausschuß Holz im DNA
Ausschuß Terminologie im DNA

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1 0. DK 621.932
Handsäge: Sägewerkzeug, das durch Handkraft betätigt wird.

2 1. DK 621.932.2/.3
Handsäge ohne Vorspannung: Handsäge (1), deren Schneidkörper (Blatt) nicht vorgespannt ist (*siehe 51*), sondern nur mit einem oder zwei Heften versehen ist.
Auch: > Handblattsäge

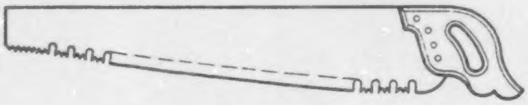
Anmerkung: Handblattsägen sind nur solche Handsägen (1) ohne Vorspannung, deren Schneidkörper blattförmig ist; die Zugkettensäge (50) gehört also nicht dazu.

3 1.1. DK 621.932.2
Heftsäge: Handsäge ohne Vorspannung (2), deren Schneidkörper (Blatt) an einem Ende von Hand geführt wird.
Auch: Handsteifsäge; Einmannblattsäge

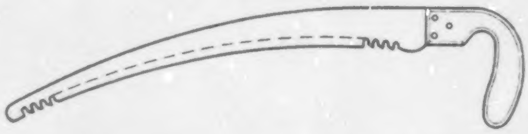
4 1.1.1. DK 621.932.23
Heftsäge für Rundholz: Heftsäge (3) zum Querschneiden (Fällen oder Ablängen) von Stämmen (5) oder Ästen (8).

5 1.1.1.1. DK 621.932.23 ●
Heftsäge für Stämme: Heftsäge für Rundholz (4) in Form von Stämmen, stets mit Heft (nicht Tülle).
Auch: Waldsteifsäge (*für Handgebrauch*)
Nicht: Stoßsäge

6 1.1.1.1.1. DK 621.932.231
Trummsäge: Heftsäge für Stämme (5) mit gebauchtem, 600 bis 1200 mm langem Blatt.
Nicht: °Einmannsäge; °Fuchsschwanz; °Einhandsäge



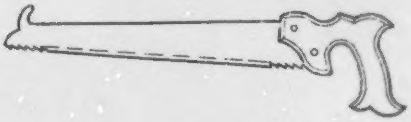
7 1.1.1.1.2. DK 621.932.23 ●
Sensensäge: Heftsäge für Stämme (5) bis 300 mm Dicke, mit sensenförmigem, 600 bis 800 mm langem Blatt, auf Zug arbeitend.
Auch: Jiri-Säge (*geschützter Markenname*)
Nicht: °Durchforstungssäge



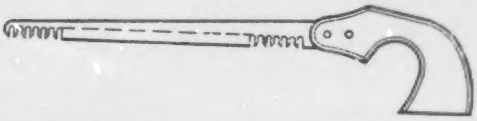
8 1.1.1.2. DK 621.932.232
Astsäge: Heftsäge für Rundholz (4) in Form von Ästen; entweder mit einem 300 bis 500 mm langen Blatt und mit einem Heft oder mit einem 400 bis 800 mm langen Blatt und mit einer Tülle.
Auch: Gärtnersteifsäge
Nicht: °Ästungssteifsäge

9 1.1.1.2.1. DK 621.932.232 ●
gerade Astsäge: Astsäge (8) mit gerader Zahnlinie, auf Stoß oder auf Zug oder auf Stoß und Zug arbeitend (je nach der Zahnung).

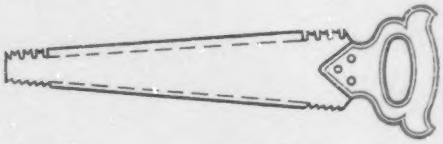
10 1.1.1.2.1.1. DK 621.932.232 ●●
Portsäge: Gerade Astsäge (9) mit schmalem trapezförmigem Blatt und mit Fuchsschwanzheft.
Auch: Gärtnerfuchsschwanz



11 1.1.1.2.1.2. DK 621.932.232 ●●
Stichastsäge: Gerade Astsäge (9) mit sehr schmalem Blatt und mit Haken- oder Fuchsschwanzheft.
Auch: Idunasäge (*nur wenn mit wechselständigen Zähnen*)
Nicht: °Baumstichsäge

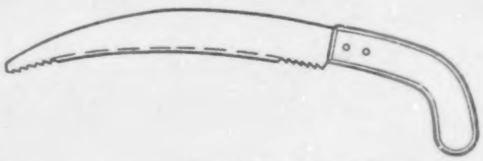


12 1.1.1.2.1.3. DK 621.932.232 ●●
zweischneidige gerade Astsäge: Gerade Astsäge (9) mit beiderseits gezahntem Blatt und mit Ochsenkopfheft.
Nicht: °Zweischneidesäge; °doppelschneidige Säge; °Duplexsäge



13 1.1.1.2.2. DK 621.932.232 ●
gekrümmte Astsäge: Astsäge (8) mit gekrümmter Zahnlinie, stets auf Zug arbeitend.
Nicht: °gekrümmte Gärtnersäge

14 1.1.1.2.2.1. DK 621.932.232 ●●
gekrümmte Astsäge mit Heft: Gekrümmte Astsäge (13), die mit einem Heft versehen ist.
Auch: Rebensäge
Nicht: °Rebsäge; °Weingartensäge



15 1.1.1.2.2.2. DK 621.932.232 ●●
(gekrümmte) Stangenastsäge: Gekrümmte Astsäge (13), die mit einer Tülle versehen ist, zum Aufstecken auf eine Stange.
Auch: gekrümmte Astsäge mit Tülle
Nicht: °gekrümmte Astsäge

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Example 2: BS 3558: 1980 [31]

(partly classified order)

4.3 Coagulation phenomena

No.	Term	Definition
4301	**agglomeration**	Reversible or irreversible joining together of latex particles.
4302	**blowing down**	Removal of excess ammonia from latex by stirring the latex while passing a stream of air across the surface.
4303	**coagulation**	Irreversible agglomeration of particles originally dispersed in a rubber latex to form a continuous phase of the rubber and a dispersed phase of the serum.
4304	**coagulum**	Immediate product of coagulation of latex consisting of agglomerates of rubber particles.
4305	**creaming**	Process by which the particles in certain latices, especially natural rubber latex, due to their buoyancy, tend to concentrate at the surface of the latex.
4306	**flocculation**	Formation (sometimes reversible) of loosely coherent, partially agglomerated rubber, distributed in the liquid phase of a latex.
4307	**fractional coagulation**	Deliberate coagulation of a portion of the rubber particles in latex.
4308	**gelling**	Formation of a uniform coagulum from which the aqueous phase has not separated.
4309	**precoagulum**	Coagulum resulting from partial inadvertent coagulation of a rubber latex.
4310	**mechanical stability**	Ability of latex to resist coagulation under the influence of mechanical agitation.

4.4 Additives

4401	**coagulant**	Substance used for causing coagulation.
4402	**creaming agent**	Substance which, when added to a latex, increases the rate of creaming probably by promoting flocculation of rubber particles and thus increasing their buoyancy.
4403	**flocculant**	Substance used for causing flocculation.
4404	**gelling agent**	Substance used for causing gelling.
4405	**heat sensitizer**	Gelling agent effective only at elevated temperature.

Section five. Rubber products

5.1 Cellular materials

Types

5101	**cellular**	Consisting of a mass of cells.
5102	**cellular material**	Material having many cells (either open, closed, or both), dispersed throughout its mass.
5103	**cellular rubber**	Mass of cells in which the matrix is rubber.
5104	**closed cell cellular material**	Cellular material in which practically all the cells are non-interconnecting.
5105	**cored cellular material**	Cellular material containing a multiplicity of holes (usually, but not necessarily, cylindrical in shape) moulded or cut into the material in some pattern, normally perpendicular to the largest surface, and extending a part or all of the way through the piece.

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Example 3: Glossary of shipbuilding terms /32/

1. BODY LINES AND SHAPES

1.1.	**Body axes system**	Right hand orthogonal system of axes fixed in the body, with the Z-axis vertical to the base plane and the X-axis in the longitudinal centre plane.

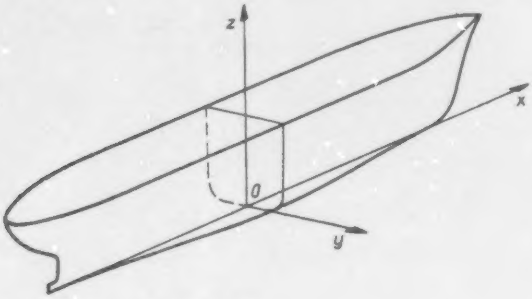


Fig. 1. Body axes system

1.2.	**Fixed axes system**	Right hand orthogonal system of axes, fixed in relation to the earth, the Z_o-axis vertical to the water level and X_o-axis in the general direction of initial motion.
1.3.	**Initial position of flotation, upright position**	The position of a ship, in which the vertical Z-axes of fixed and body systems are parallel to each other.
1.5.	**Longitudinal centre plane**	The longitudinal plane of symmetry of the ship's body.
1.6.	**Moulded base plane**	The plane parallel to free water level and passing at the top of keel (amidship) in designed position of flotation.
1.7.	**Midship section plane**	Transverse vertical plane equidistant from the fore and after perpendiculars.
1.8.	**Plane of flotation**	Water level plane.
1.9.	**Body shape**	The geometrical form of the hull moulded surface.
1.10.	**Underwater hull, underwater body**	The immersed part of the floating ship hull.
1.11.	**Abovewater hull, above water body**	The emersed part of the floating ship hull.
1.12.	**Wetted surface**	The surface of underwater body.
1.13.	**Body lines, lines drawing, lines (moulded)**	The set of lines of intersection of the hull moulded surface with the planes parallel to the three data plane, i.e. base plane, longitudinal centre plane and midship section plane.

4.081.2 Monolingual dictionaries (term oriented items)

A monolingual dictionary is a collection of term oriented items in one language, the ordering elements of which are terms. The items follow an alphabetical order of terms.

Example: A dictionary of spectroscopy [33]

H

Half-wave plates (r.s.). Special types of **retardation plates** used to create half a **wavelength** or 180° phase difference between the phases of the ordinary and extraordinary components of the polarized light.

Hard X-rays. *See* **X-rays.**

Harmonic vibrations (i.r.). *See* **Overtones.**

h **bar.** *See* **Planck constant.**

Heated graphite atomizer (a.s.). *See* **Carbon filament atom reservoir**; **Massmann furnace.**

Heated inlet systems (m.s.). Solids and liquids possessing low vapour pressures can be introduced into the mass spectrophotometer by several different heated inlet systems. In some cases the **batch inlet sampling system** can be used if it is fully heated along its length to the ionization chamber. A **direct insertion probe** operating at elevated temperatures is frequently used for solids, whilst liquids can be introduced through a molten **gallium cut-off.**

Helmholtz pair (n.m.r.). *See* **Sweep coils.**

Henke gun (pe.). One of the early sources for the production of X-rays for photoelectron spectroscopy was the Henke gun,[127] and this has served as the basis for the development of other devices. Its main features are a **cathode** filament positioned out of direct line with the **anode** which is maintained at a positive potential of about 3 kV. Any scattered electrons are drawn towards the anode and do not impinge on the window through which the **X-rays** are emitted.

Hertz (Hz) (n.m.r.). An **SI unit** for frequency which has now superseded the former expression cycles per second (cs^{-1}). It is used for the

4.081.3 Monolingual thesauri

The structure of a monolingual item can be found in 4.071.3. The items can be arranged in systematical or alphabetical order.

Example 1: ISO/DIS 2788; [34]
Alphabetical display

35mm CAMERAS
BT: MINIATURE CAMERAS

CAMERAS
BT: OPTICAL EQUIPMENT
NT: MOVING PICTURE CAMERAS
STEREO CAMERAS
STILL CAMERAS
UNDERWATER CAMERAS
RT: PHOTOGRAPHY

CINE CAMERAS
BT: MOVING PICTURE CAMERAS
NT: UNDERWATER CINE CAMERAS
RT: CINEMA

CINEMA
RT: CINE CAMERAS

DIVING
RT: UNDERWATER CAMERAS

INSTANT PICTURE CAMERAS
SN: Cameras which produce a finished print directly
BT: STILL CAMERAS

Land cameras *USE* VIEW CAMERAS

MICROSCOPES
BT: OPTICAL EQUIPMENT

MINIATURE CAMERAS
BT: STILL CAMERAS
NT: 35mm CAMERAS

MOVING PICTURE CAMERAS
BT: CAMERAS
NT: CINE CAMERAS
TELEVISION CAMERAS

OPTICAL EQUIPMENT
NT: CAMERAS
MICROSCOPES

PHOTOGRAPHY
RT: CAMERAS

REFLEX CAMERAS
BT: STILL CAMERAS
NT: SINGLE LENS REFLEX CAMERAS
TWIN LENS REFLEX CAMERAS

SINGLE LENS REFLEX CAMERAS
BT: REFLEX CAMERAS

STEREO CAMERAS
BT: CAMERAS

STILL CAMERAS
BT: CAMERAS
NT: INSTANT PICTURE CAMERAS
MINIATURE CAMERAS
REFLEX CAMERAS
VIEW CAMERAS

TELEVISION
RT: TELEVISION CAMERAS

TELEVISION CAMERAS
SN: Cameras for both broadcasting and videotape recording
BT: MOVING PICTURE CAMERAS
RT: TELEVISION

TWIN LENS REFLEX CAMERAS
BT: REFLEX CAMERAS

UNDERWATER CAMERAS
BT: CAMERAS
NT: UNDERWATER CINE CAMERAS
RT: DIVING

UNDERWATER CINE CAMERAS
BT: CINE CAMERAS
UNDERWATER CAMERAS

VIEW CAMERAS
SN: Cameras with through-the-lens focusing and a range of movements of the lens plane relative to the film plane
UF: Land cameras
BT: STILL CAMERAS

Example 2: ISO/DIS 2788 [35]

Systematic display

301 OPTICAL EQUIPMENT

302 CAMERAS
RT: Photography 824

303 MOVING PICTURE CAMERAS
By medium
304 CINE CAMERAS
RT: CINEMA 895
305 UNDERWATER CINE CAMERAS
306 TELEVISION CAMERAS
RT: Television 897

307 STEREO CAMERAS

308 STILL CAMERAS
309 INSTANT PICTURE CAMERAS
SN: Cameras which produce a finished print directly
310 MINIATURE CAMERAS
311 35mm CAMERAS
312 REFLEX CAMERAS
313 SINGLE LENS REFLEX CAMERAS
314 TWIN LENS REFLEX CAMERAS
315 VIEW CAMERAS
SN: Cameras with through-the-lens focusing and a range of movements of the lens plane relative to the film plane
UF: Land cameras

316 UNDERWATER CAMERAS
RT: Diving 931
317 UNDERWATER CINE CAMERAS

318 MICROSCOPES

Alphabetical index

35mm CAMERAS 311

CAMERAS 302
RT: Photography 824

CINE CAMERAS 304
RT: Cinema 895

CINEMA 895
RT: Cine cameras 304

DIVING 931
RT: Underwater cameras 316

INSTANT PICTURE CAMERAS 309
SN: Cameras which produce a finished print directly

Land cameras *USE* VIEW CAMERAS 315

MICROSCOPES 318

MINIATURE CAMERAS 310

MOVING PICTURE CAMERAS 303

OPTICAL EQUIPMENT 301

PHOTOGRAPHY 824
RT: Cameras 302

REFLEX CAMERAS 312

SINGLE LENS REFLEX CAMERAS 313

STEREO CAMERAS 307

STILL CAMERAS 308

TELEVISION 897
RT: Television cameras 306

TELEVISION CAMERAS 306
RT: Television 897

TWIN LENS REFLEX CAMERAS 314

UNDERWATER CAMERAS 316
RT: Diving 931

UNDERWATER CINE CAMERAS 305; 317

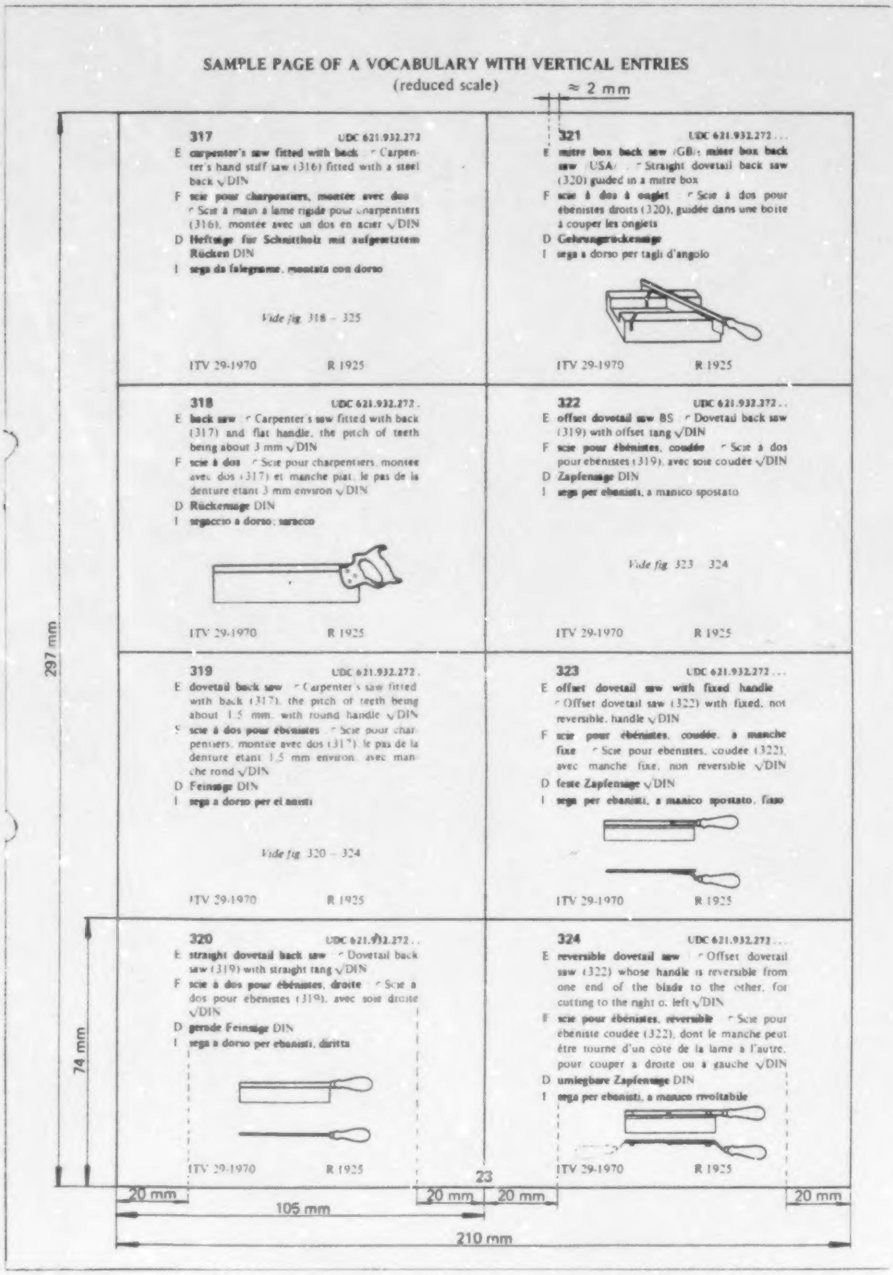
VIEW CAMERAS 315
SN: Cameras with through-the-lens focusing and a range of movements of the lens plane relative to the film plane
UF: Land cameras

4.082 Multilingual terminographical data collections

4.082.1 Multilingual terminology standards

Example 1: ISO/R 1149 /36/

Sample page of a vocabulary with vertical arrangement of items


≈ 2 mm
297 mm
74 mm
20 mm
105 mm
20 mm
20 mm
20 mm
210 mm

ISO/R 1149-1969 (E)

SAMPLE PAGE OF A VOCABULARY WITH VERTICAL ENTRIES
(reduced scale)

317 UDC 621.932.272
E **carpenter's saw fitted with back** ⌐ Carpenter's hand stiff saw (316) fitted with a steel back √DIN
F **scie pour charpentiers, montée avec dos** ⌐ Scie à main à lame rigide pour charpentiers (316), montée avec un dos en acier √DIN
D **Heftsäge für Schnittholz mit aufgesetztem Rücken** DIN
I **sega da falegname, montata con dorso**

Vide fig. 318 – 325

ITV 29-1970 R 1925

318 UDC 621.932.272 .
E **back saw** ⌐ Carpenter's saw fitted with back (317) and flat handle, the pitch of teeth being about 3 mm √DIN
F **scie à dos** ⌐ Scie pour charpentiers, montee avec dos (317) et manche plat, le pas de la denture etant 3 mm environ √DIN
D **Rückensäge** DIN
I **segaccio a dorso; saracco**

ITV 29-1970 R 1925

319 UDC 621.932.272 .
E **dovetail back saw** ⌐ Carpenter's saw fitted with back (317), the pitch of teeth being about 1,5 mm, with round handle √DIN
F **scie à dos pour ébénistes** ⌐ Scie pour charpentiers, montee avec dos (317), le pas de la denture etant 1,5 mm environ, avec manche rond √DIN
D **Feinsäge** DIN
I **sega a dorso per ebanisti**

Vide fig. 320 – 324

ITV 29-1970 R 1925

320 UDC 621.932.272 . .
E **straight dovetail back saw** ⌐ Dovetail back saw (319) with straight tang √DIN
F **scie à dos pour ébénistes, droite** ⌐ Scie a dos pour ebenistes (319), avec soie droite √DIN
D **gerade Feinsäge** DIN
I **sega a dorso per ebanisti, diritta**

ITV 29-1970 R 1925

321 UDC 621.932.272 . . .
E **mitre box back saw** /GB/; **miter box back saw** /USA/ ⌐ Straight dovetail back saw (320) guided in a mitre box
F **scie à dos à onglet** ⌐ Scie à dos pour ébénistes droits (320), guidée dans une boite à couper les onglets
D **Gehrungsrückensäge**
I **sega a dorso per tagli d'angolo**

ITV 29-1970 R 1925

322 UDC 621.932.272 . .
E **offset dovetail saw** BS ⌐ Dovetail back saw (319) with offset tang √DIN
F **scie pour ébénistes, coudée** ⌐ Scie a dos pour ebenistes (319), avec soie coudee √DIN
D **Zapfensäge** DIN
I **sega per ebanisti**, a manico spostato

Vide fig. 323 – 324

ITV 29-1970 R 1925

323 UDC 621.932.272 . . .
E **offset dovetail saw with fixed handle** ⌐ Offset dovetail saw (322) with fixed, not reversible, handle √DIN
F **scie pour ébénistes, coudée, à manche fixe** ⌐ Scie pour ebenistes, coudee (322), avec manche fixe, non reversible √DIN
D **feste Zapfensäge** √DIN
I **sega per ebanisti, a manico spostato, fisso**

ITV 29-1970 R 1925

324 UDC 621.932.272 . . .
E **reversible dovetail saw** ⌐ Offset dovetail saw (322) whose handle is reversible from one end of the blade to the other, for cutting to the right o. left √DIN
F **scie pour ébénistes, réversible** ⌐ Scie pour ébeniste coudee (322), dont le manche peut être tourne d'un cote de la lame a l'autre, pour couper a droite ou à gauche √DIN
D **umlegbare Zapfensäge** DIN
I **sega per ebanisti, a manico rivoltabile**

ITV 29-1970 R 1925

23

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Example 2: International Electrotechnical Vocabulary (IEV) published by International Electrotechnical Commission (IEC) [37]

Sample page of a vocabulary with horizontal arrangement of items

Sections 391-05 à 391-07 — Composants et constituants des sous-ensembles de détection
Sections 391-05 to 391-07 — Components and constituents of detection sub-assemblies
Разделы 391-05 — 391-07 — Детали и элементы блоков детектирования

SECTION 391-05 — TERMES GÉNÉRAUX
SECTION 391-05 — GENERAL TERMS
РАЗДЕЛ 391-05 — ОБЩИЕ ТЕРМИНЫ

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391-05-01			
semi-conducteur Matériau dont la conductivité totale due aux *porteurs de charge* des deux signes (électrons et trous) est normalement comprise entre celle des métaux et celle des isolants, et dont la densité des porteurs de charge peut être modifiée par des excitations extérieures.	**semiconductor** Material whose total conductivity, due to *charge carriers* of both signs (electrons and holes), is normally in the range between that of metals and insulators and in which the charge carrier density can be changed by external means.	**полупроводник** Вещество, полная электропроводность которого, обусловленная *носителями зарядов* обоих знаков (электронов и дырок), обычно является промежуточной между электропроводностью металлов и электроизоляционных материалов и в котором концентрация носителей зарядов может изменяться за счет внешних воздействий.	**Halbleiter** **semiconductor** **semiconduttore** **halfgeleider** **półprzewodnik** **halvledare**
391-05-02			
semi-conducteur intrinsèque (type I) *Semi-conducteur* pratiquement pur dans lequel, à l'équilibre thermodynamique, les nombres volumiques des *porteurs de charge* de chaque signe, sont à peu près égaux. *Note*. — Par extension, ce terme est improprement utilisé pour désigner les *semi-conducteurs compensés*.	**intrinsic semiconductor** (I-type) An effectively pure *semiconductor* in which, under conditions of thermal equilibrium, the *charge carrier* densities of each sign are nearly equal. *Note*. — By extension, this term is incorrectly used to designate *compensated semiconductors*.	**собственный полупроводник** (I-полупроводник) Практически чистый *полупроводник*, в котором концентрации *носителей зарядов* противоположного знака почти равны в условиях теплового равновесия. *Примечание*. — В более широком смысле данный термин неправильно применяется для обозначения *скомпенсированных полупроводников*. (*Примечание*. В русском языке « Собственный полупроводник » определен как полупроводник, не содержащий донорных и акцепторных примесей. — *Ред*.).	**eigenleitender Halbleiter** **semiconductor intrinseco** (tipo !) **semiconduttore intrinseco** (tipo I) **intrinsieke halfgeleider** (I-type) **półprzewodnik właściwy** (typu I) **egenhalvledare**
391-05-03			
semi-conducteur compensé *Semi-conducteur* dans lequel les effets des impuretés d'un type donné sur le nombre volumique des *porteurs de charge* sont partiellement ou totalement annulés par les effets des impuretés du type opposé. Un tel semi-conducteur a des propriétés voisines de celles d'un *semi-conducteur intrinsèque*.	**compensated semiconductor** A *semiconductor* in which the effects of the impurities of a given type on the *charge carrier* density partially or completely cancel those of the other type. Such a semiconductor has properties which are similar to those of an *intrinsic semiconductor*.	**скомпенсированный полупроводник** *Полупроводник*, в котором влияние примесей данного типа на концентрацию *носителей зарядов* частично или полностью компенсируется примесями другого типа. Свойства такого полупроводника подобны свойствам *собственного полупроводника*.	**kompensierter Halbleiter** **semiconductor compensado** **semiconduttore compensato** **gecompenseerde halfgeleider** **półprzewodnik skompensowany** **kompenserad halvledare**
391-05-04			
semi-conducteur extrinsèque *Semi-conducteur* contenant des impuretés ou d'autres imperfections et dans lequel les nombres volumiques de *porteurs de charge* de chaque signe sont différents.	**extrinsic semiconductor** A *semiconductor* having impurities or other imperfections and in which the *charge carrier* densities of each sign are different.	**примесный полупроводник** *Полупроводник* с примесями или другими дефектами, у которого концентрации *носителей зарядов* противоположного знака различны.	**störstellenhalbleiter** **semiconductor extrínseco** **semiconduttore estrinseco** **extrinsieke halfgeleider** **półprzewodnik samoistny** **störhalvledare**

2.1.3 **entrapment [capture] vacuum pump** : A vacuum pump in which the molecules are retained by sorption or condensation on internal surfaces.	**pompe à vide à fixation** (f) : Pompe à vide sur les parois intérieures de laquelle les molécules de gaz sont fixées par sorption ou condensation.	2.1.3 **улавливающий (захватывающий) вакуумный насос:** Вакуумный насос, в котором используется принцип сорбции или конденсации молекул газа на внутренних поверхностях.	**gasbindende Vakuumpumpe** (f) [**Sorptionspumpe** (f) und **Kondensationspumpe** (f)]
2.1.3.1 **adsorption pump** : An entrapment pump in which the gas is retained mainly by physical adsorption of a material of large real area (for example a porous substance).	**pompe à physisorption** (f); **pompe à sorption** (f) : Pompe à fixation dans laquelle le gaz est principalement fixé par la physisorption d'une substance à grande surface réelle (par exemple, une surface poreuse).	2.1.3.1 **адсорбционный насос:** Улавливающий насос, в котором газ удерживается главным образом за счет физической адсорбции материала с большой фактической площадью (например, пористого вещества).	**Adsorptionspumpe** (f)
2.1.3.2 **getter pump** : An entrapment pump in which the gas is retained principally by chemical combination with a "getter". This is usually a metal or a metal alloy, either in bulk or in the form of a freshly deposited thin film.	**pompe à sorbeur** (f) : Pompe à fixation dans laquelle le gaz est principalement fixé par combinaison chimique avec un sorbeur. Celui-ci est habituellement un métal ou un alliage métallique, sous forme solide ou fraîchement déposé en couches minces.	2.1.3.2 **геттерный насос:** Улавливающий насос, в котором газ удерживается в результате химического соединения с «геттером». В качестве газопоглотителя обычно применяется металл или металлический сплав в объеме, или в виде свежераспыленной тонкой пленки.	**Getterpumpe** (f)
2.1.3.3 **sublimation [evaporation] pump** : An entrapment pump in which a getter material is sublimed [evaporated].	**pompe à sublimation [à évaporation]** (f) : Pompe à fixation dans laquelle un sorbeur se sublime [est évaporé].	2.1.3.3 **сублимационный (испарительный) насос:** Улавливающий насос, в котором газопоглощающий материал сублимируется (испаряется).	**Verdampferpumpe** (f); **Sublimationspumpe** (f)
NOTE — In that context evaporation and sublimation are similar concepts.	NOTE — En ce qui concerne cette définition, l'évaporation et la sublimation sont considérées comme des processus semblables.	ПРИМЕЧАНИЕ — В данном контексте термины испарение и сублимация являются синонимами.	
2.1.3.4 **getter ion pump** : An entrapment pump in which the gas molecules are ionized and then transferred towards a surface of the pump on which they are retained by a getter, by means of electric fields, combined or not with a magnetic field.	**pompe ionique à sorbeur** (f) : Pompe à fixation dans laquelle les molécules de gaz sont ionisées, puis transférées vers une surface de la pompe sur laquelle, par l'action de champs électriques combinés ou non à un champ magnétique, elles sont fixées par un sorbeur.	2.1.3.4 **геттерно-ионный насос:** Улавливающий насос, в котором посредством электрических полей в сочетании с магнитным полем или без него молекулы газа ионизируются и увлекаются затем к поверхностям насоса, где поглощаются газопоглотителем.	**Ionengetterpumpe** (f)
2.1.3.4.1 **sublimation [evaporation] ion pump** : A getter ion pump in which the ionized gas is transferred towards a getter which is produced by sublimation or evaporation in either a continuous or discontinuous way.	**pompe ionique à sublimation [à évaporation]** (f) : Pompe ionique à sorbeur dans laquelle le gaz ionisé est transféré vers un sorbeur sublimé ou évaporé, soit de façon continue, soit de façon discontinue.	2.1.3.4.1 **испарительно-ионный насос:** Геттерно-ионный насос, в котором ионизированный газ направляется к газопоглотителю, полученному в результате непрерывной или периодической сублимации или испарения.	**Ionenverdampferpumpe** (f)
2.1.3.4.2 **sputter ion pump** : A getter ion pump in which the ionized gas is transferred towards a getter which is dispersed in a continuous way by cathodic sputtering.	**pompe ionique à pulvérisation** : (f) : Pompe ionique à sorbeur dans laquelle le gaz ionisé est transféré vers un sorbeur dispersé par pulvérisation cathodique de façon continue.	2.1.3.4.2 **магниторазрядный насос:** Геттерно-ионный насос, в котсоом ионизированный газ направляется к газопоглотителю, который непрерыено распыляется методом катодного распыления.	**Ionenzerstäuberpumpe** (f)
2.1.3.5 **cryopump** : An entrapment pump consisting of surfaces refrigerated to a low temperature sufficient to condense residual gases. The condensate is then maintained at a temperature such that the equilibrium vapour pressure is equal to or less than the desired low pressure in the chamber.	**pompe cryostatique** (f); **cryopompe** (f) : Pompe à fixation constituée par des surfaces refroidies à température suffisamment basse pour condenser les gaz résiduels. Le condensat est ensuite maintenu à une température telle que la pression de vapeur d'équilibre soit égale ou inférieure à la basse pression requise dans l'enceinte.	2.1.3.5 **криогенный насос:** Улавливающий насос, состоящий из поверхностей, охлажденных до низкой температуры и способных конденсировать остаточные газы. Конденсат затем поддерживается при температуре, при которой равновесное давление пара равно или меньше желаемого низкого давления в камере.	**Kryopumpe** (f)
NOTE — The temperature chosen shall be in the range below 120 K depending on the nature of the gases to be pumped.	NOTE — La température sera inférieure à 120 K et le choix de celle-ci dépendra de la nature des gaz à pomper.	ПРИМЕЧАНИЕ — Выбранная температура будет в диапазоне ниже 120 °K (– 153.2 °C) в зависимости от состава откачиваемого газа.	
2.2 Parts of pumps	**Éléments de pompes**	**2.2. Части насоса**	**Vakuumpumpenteile**
2.2.0.1 **pump case** : The external wall of a pump, which separates the low pressure gas from the atmosphere.	**corps de pompe** (m) : Enveloppe extérieure d'une pompe, qui isole le gaz à basse pression de l'atmosphère.	2.2.0.1 **корпус насоса:** Внешняя стенка насоса, которая отделяет газ низкого давления от атмосферы.	**Vakuumpumpenkörper** (m); **Vakuumpumpengehäuse** (n)
2.2.0.2 **inlet** : The port by which gas to be pumped enters a pump.	**admission** (f) : Ouverture par laquelle le gaz à évacuer est admis dans une pompe.	2.2.0.2 **вход:** Отверстие, через которое откачиваемый газ поступает в насос.	**Einlaßöffnung** (f); **Ansaugöffnung** (f)
2.2.0.3 **outlet** : The outlet or discharge port of a pump.	**refoulement** (m) : Ouverture d'évacuation des gaz pompés.	2.2.0.3 **выход:** Выходное или выхлопное отверстие насоса.	**Auslaßöffnung** (f); **Auspuff** (m)
2.2.1.1 **vane; blade** : A sliding member which divides into compartments the working space between the rotor and stator in some positive displacement rotary pumps.	**palette** (f) : Pièce coulissante de certaines pompes volumétriques rotatives, qui divise en compartiments la chambre comprise entre le rotor et le stator.	2.2.1.1 **пластина; лопатка:** Скользящий элемент, который делит рабочее пространство между ротором и статором вращательного насоса объемного действия на полости.	**Schieber** (m)

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4.082.2 Multilingual non-standardized vocabularies

Example: The Machine Tool [39]

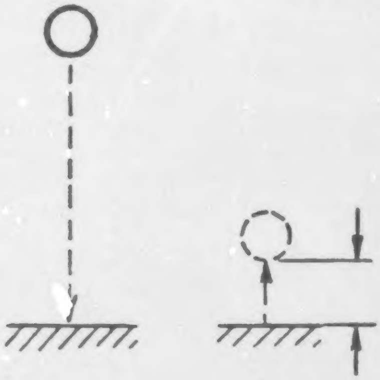
Sample page

Vocabulary *Vocabulaire* [8.31]

102 UDC 620.178.153.4.05

(Shore) scleroscope hardness test BS; **rebound [Shore] hardness test:** A ⌜hardness test (96) based on the height of rebound of a diamond-tipped hammer falling from a fixed height.

essai de dureté ⌜par rebondissement [au scléroscope]; essai (de dureté) Shore: ⌜Essai de dureté (96) basé sur la hauteur de rebondissement d'un marteau à pointe de diamant tombant d'une hauteur déterminée.



103 UDC 620.193.918

natural ageing BS: A change in properties that may occur gradually at atmospheric temperatures BS.

(stabilisation naturelle par) vieillissement: Changement de propriétés qui peut se produire progressivement à des températures atmosphériques √BS.

104 UDC 620.193.918

non-ageing: Not susceptible to ageing. This property is the result either of ⌜natural ageing (103) or of ⌜artificial ageing (204), or may be inherent in a metal or other substance.

insensible au vieillissement: Non susceptible de vieillissement. Cette propriété résulte soit d'une ⌜stabilisation naturelle (103), soit d'un procédé de ⌜vieillissement artificiel (204), ou peut être inhérente à la matière.

105 UDC 620.193

wear BS, ISA: Gradual impairment, wasting, diminution, etc., as caused by use.

usure ISA, NBN: Détérioration, diminution, etc., progressive provoquée par l'utilisation.

106 UDC 620.197

rust inhibitor; rust prevent(at)ive: Any substance which arrests or prevents the formation of rust.

antirouille: Substance arrêtant ou empêchant la formation de la rouille.

4.082.3 Multilingual dictionaries

Example: Dorian. Dictionary of industrial chemistry [40]

7711	TITANIUM CARBIDE A component of cermets and carbide cutting tools.	F.	carbure m. de titane
		E.	carburo m. de titanio
		I.	carburo m. di titanio
		Nl.	titaancarbide
		D.	Titancarbid n.
7712	TITANIUM DIOXIDE Black to white powder with application as a paint pigment, and a filler for paper, rubber and plastics.	F.	bioxyde m. de titane
		E.	dióxido m. de titanio
		I.	biossido m. di titanio
		Nl.	titaandioxyde
		D.	Titandioxyd n.
7713	TITANIUM PEROXIDE A constituent of ceramic glazes.	F.	peroxyde m. de titane
		E.	peroxido m. de titanio
		I.	perossido m. di titanio
		Nl.	titaanperoxyde
		D.	Titanperoxyd n.
7714	TITANIUM-POTASSIUM OXALATE A mordant in dyeing.	F.	oxalate m. de titane et depotassium
		E.	oxalato m. de titanio y potasio
		I.	ossalato m. di potassio e titanio
		Nl.	kalium-titaan-oxalaat
		D.	Titankaliumoxalat n.
7715	TITANIUM SULPHATE A textile processing agent.	F.	sulfate m. de titane
		E.	sulfato m. de titanio
		I.	solfato m. di titanio
		Nl.	titanosulfaat
		D.	Titansulfat n.
7716	TITANIUM TETRACHLORIDE A polymerization catalyst, constituent of special glasses, mordant in dyeing, and an intermediate for pigments.	F.	tétrachlorure m. de titane
		E.	tetracloruro m. de titanio
		I.	tetracloruro m. di titanio
		Nl.	titaantetrachloride
		D.	Tetrachlortitan n.
7717	TITANIUM TRICHLORIDE A polymerization catalyst and reducing agent.	F.	trichlorure m. de titane
		E.	tricloruro m. de titano
		I.	tricloruro m. di titanio
		Nl.	titaantrichloride
		D.	Titantrichlorid n.
7718	TITANIUM WHITE A non-toxic pigment with good hiding power, consisting of a mixture of titanium dioxide and barium sulphate.	F.	blanc m. de titane
		E.	blanco m. de titanio
		I.	bianco m. di titanio
		Nl.	titaanwit
		D.	Titanweiss n.
7719	TITANOUS SULPHATE A dyeing assistant textiles.	F.	sulfate m. de titane
		E.	sulfato m. titanoso
		I.	solfato m. titanoso
		Nl.	titaansulfaat
		D.	Titanosulfat n.

4.082.4 Multilingual thesauri

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The items can be arranged systematically or alphabetically.

Example 1: ISO/DIS 5964 [41]

(1) Alphabetical arrangement with juxtaposed monolingual sections
(English as filing language)

AEROPLANES	AVION	MOTORFLUGZEUG
SN fixed-wing, powered, heavier-than-air aircraft	*NE* aéronef plus lourd que l'air, propulsé, à aile fixe	*D* nur für Luftfahrzeuge mit befestigten Flügeln, die schwerer als Luft sind
BT FIXED-WING AIRCRAFT	*TG* AERONEF A AILE FIXE	*OB* FLUGZEUG
NT FREIGHT AEROPLANES	*TS* AVION CARGO	*UB* FRACHTFLUGZEUG
JET AEROPLANES	AVION A REACTION	DÜSENFLUGZEUG
Aerostats *USE* LIGHTER-THAN-AIR AIRCRAFT		
AIRCRAFT	AERONEF	LUFTFAHRZEUG
NT HEAVIER-THAN-AIR AIRCRAFT	*TS* AERONEF PLUS LOURD QUE L'AIR	*UB* LUFTFAHRZEUG SCHWERER ALS LUFT
LIGHTER-THAN-AIR AIRCRAFT	AEROSTAT	AEROSTAT
MILITARY AIRCRAFT	AERONEF MILITAIRE	MILITÄRLUFTFAHRZEUG
AIRSHIPS	DIRIGEABLE	LUFTSCHIFF
BT LIGHTER-THAN-AIR AIRCRAFT	*TG* AEROSTAT	*OB* AEROSTAT
AVIATION	AVIATION	AVIATIK
		BF Flugwesen
NT GLIDING	*TS* VOL A VOILE	*UB* GLEITFLUG
RT HEAVIER-THAN-AIR AIRCRAFT	*VA* AERONEF PLUS LOURD QUE L'AIR	*VB* LUFTFAHRZEUG SCHWERER ALS LUFT
Cargo *USE* FREIGHT		
FIXED-WING AIRCRAFT	AERONEF A AILE FIXE	FLUGZEUG
BT HEAVIER-THAN-AIR AIRCRAFT	*TG* AERONEF PLUS LOURD QUE L'AIR	*OB* LUFTFAHRZEUG SCHWERER ALS LUFT
NT AEROPLANES	*TS* AVION	*UB* MOTORFLUGZEUG
GLIDERS	PLANEUR	SEGELFLUGZEUG
FREIGHT	FRET	FRACHT
UF Cargo	*EP* Cargaison	*BF* Kargo
		Ladung
RT FREIGHT AEROPLANES	*VA* AVION CARGO	*VB* FRACHTFLUGZEUG
FREIGHT AEROPLANES	AVION CARGO	FRACHTFLUGZEUG
BT AEROPLANES	*TG* AVION	*OB* MOTORFLUGZEUG
RT FREIGHT	*VA* FRET	*VB* FRACHT
GLIDERS	PLANEUR	SEGELFLUGZEUG
		BF Gleitflugzeug
BT FIXED-WING AIRCRAFT	*TG* AERONEF A AILE FIXE	*OB* FLUGZEUG
RT GLIDING	*VA* VOL A VOILE	*VB* GLEITFLUG
GLIDING	VOL A VOILE	GLEITFLUG
BT AVIATION	*TG* AVIATION	*OB* AVIATIK
RT GLIDERS	*VA* PLANEUR	*VB* SEGELFLUGZEUG
HEAVIER-THAN-AIR AIRCRAFT	AERONEF PLUS LOURD QUE L'AIR	LUFTFAHRZEUG SCHWERER ALS LUFT
UF Aerodynes		
BT AIRCRAFT	*TG* AERONEF	*OB* LUFTFAHRZEUG
NT FIXED-WING AIRCRAFT	*TS* AERONEF A AILE FIXE	*UB* FLUGZEUG
HELICOPTERS	HELICOPTERE	HUBSCHRAUBER
RT AVIATION	*VA* AVIATION	*VB* AVIATIK
HELICOPTERS	HELICOPTERE	HUBSCHRAUBER
BT HEAVIER-THAN-AIR AIRCRAFT	*TG* AERONEF PLUS LOURD QUE L'AIR	*OB* LUFTFAHRZEUG SCHWERER ALS LUFT
JET AEROPLANES	AVION A REACTION	DÜSENFLUGZEUG
BT AEROPLANES	*TG* AVION	*OB* MOTORFLUGZEUG
LIGHTER-THAN-AIR AIRCRAFT	AEROSTAT	AEROSTAT
UF Aerostats		
BT AIRCRAFT	*TG* AERONEF	*OB* LUFTFAHRZEUG
NT AIRSHIPS	*TS* DIRIGEABLE	*UB* LUFTSCHIFF
MILITARY AIRCRAFT	AERONEF MILITAIRE	MILITARLUFTFAHRZEUG
BT AIRCRAFT	*TG* AERONEF	*OB* LUFTFAHRZEUG

Example 2: ISO/DIS 5964 [42]

Alphabetical arrangement of multilingual items

Aerodynes *USE* HEAVIER-THAN-AIR AIRCRAFT

AEROPLANES *D:* MOTORFLUGZEUG *F:* AVION
SN fixed-wing, powered, heavier-than-air aircraft
BT FIXED-WING AIRCRAFT *D:* FLUGZEUG *F:* AERONEF A AILE FIXE
NT FREIGHT AEROPLANES *D:* FRACHTFLUGZEUG *F:* AVION CARGO
JET AEROPLANES *D:* DÜSENFLUGZEUG *F:* AVION A REACTION

Aerostats *USE* LIGHTER-THAN-AIR AIRCRAFT

AIRCRAFT *D:* LUFTFAHRZEUG *F:* AERONEF
BT VEHICLES *D:* FAHRZEUG *F:* VEHICULE
NT HEAVIER-THAN-AIR AIRCRAFT *D:* LUFTFAHRZEUG SCHWERER ALS LUFT *F:* AERONEF PLUS LOURD QUE L'AIR
LIGHTER-THAN-AIR AIRCRAFT *D:* AEROSTAT *F:* AEROSTAT
MILITARY AIRCRAFT *D:* MILITÄRLUFTFAHRZEUG *F:* AERONEF MILITAIRE

AIRSHIPS *D:* LUFTSCHIFF *F:* DIRIGEABLE
BT LIGHTER-THAN-AIR AIRCRAFT *D:* AEROSTAT *F:* AEROSTAT

AVIATION *D:* AVIATIK *F:* AVIATION
NT GLIDING *D:* GLEITFLUG *F:* VOL A VOILE
RT HEAVIER-THAN-AIR AIRCRAFT *D:* LUFTFAHRZEUG SCHWERER ALS LUFT *F:* AERONEF PLUS LOURD QUE L'AIR

Cargo *USE* FREIGHT

FIXED-WING AIRCRAFT *D:* FLUGZEUG *F:* AERONEF A AILE FIXE
BT HEAVIER-THAN-AIR AIRCRAFT *D:* LUFTFAHRZEUG SCHWERER ALS LUFT *F:* AERONEF PLUS LOURD QUE L'AIR
NT AEROPLANES *D:* MOTORFLUGZEUG *F:* AVION
GLIDERS *D:* SEGELFLUGZEUG *F:* PLANEUR

FREIGHT *D:* FRACHT *F:* FRET
UF Cargo
RT FREIGHT AEROPLANES *D:* FRACHTFLUGZEUG *F:* AVION CARGO

FREIGHT AEROPLANES *D:* FRACHTFLUGZEUG *F:* AVION CARGO
BT AEROPLANES *D:* MOTORFLUGZEUG *F:* AVION
RT FREIGHT *D:* FRACHT *F:* FRET

GLIDERS *D:* SEGELFLUGZEUG *F:* PLANEUR
BT FIXED-WING AIRCRAFT *D:* FLUGZEUG *F:* AERONEF A AILE FIXE
RT GLIDING *D:* GLEITFLUG *F:* VOL A VOILE

GLIDING *D:* GLEITFLUG *F:* VOL A VOILE
BT AVIATION *D:* AVIATIK *F:* AVIATION
RT GLIDERS *D:* SEGELFLUGZEUG *F:* PLANEUR

HEAVIER-THAN-AIR AIRCRAFT *D:* LUFTFAHRZEUG SCHWERER ALS LUFT *F:* AERONEF PLUS LOURD QUE L'AIR
UF Aerodynes
BT AIRCRAFT *D:* LUFTFAHRZEUG *F:* AERONEF
NT FIXED-WING AIRCRAFT *D:* FLUGZEUG *F:* AERONEF A AILE FIXE
HELICOPTERS *D:* HUBSCHRAUBER *F:* HELICOPTERE
RT AVIATION *D:* AVIATIK *F:* AVIATION

HELICOPTERS *D:* HUBSCHRAUBER *F:* HELICOPTERE
BT HEAVIER-THAN-AIR AIRCRAFT *D:* LUFTFAHRZEUG SCHWERER ALS LUFT *F:* AERONEF PLUS LOURD QUE L'AIR

JET AEROPLANES *D:* DÜSENFLUGZEUG *F:* AVION A REACTION
BT AEROPLANES *D:* MOTORFLUGZEUG *F:* AVION

LIGHTER-THAN-AIR AIRCRAFT *D:* AEROSTAT *F:* AEROSTAT
UF Aerostats
BT AIRCRAFT *D:* LUFTFAHRZEUG *F:* AERONEF
NT AIRSHIPS *D:* LUFTSCHIFF *F:* DIRIGEABLE

MILITARY AIRCRAFT *D:* MILITÄRLUFTFAHRZEUG *F:* AERONEF MILITAIRE
BT AIRCRAFT *D:* LUFTFAERZEUG *F:* AERONEF

VEHICLES *D:* FAHRZEUG *F:* VEHICULE
NT AIRCRAFT *D:* LUFTFAHRZEUG *F:* AERONEF

Example 3: Systematic display with parallel monolingual sections
See 4.072.4, Example 3

Example 4: Systematic display in one language with alphabetical index in the same language and equivalents in other languages
See 4.072.4, Example 4

4.09 PARTS OF VOCABULARIES AND THESAURI

Vocabularies and thesauri can be composed of a main part and of minor parts [43]. Dictionaries, which are term oriented, have in most cases only one part, since the terms are filed in alphabetic order.

4.091 Vocabularies

Vocabularies should have the following parts:

- List of concept groups, schedule of concepts and/or table of concepts (preceding the main part),
- items in classified order (main part)
- alphabetical index(es) (in multilingual vocabularies for each language) (after the main part)

4.091.1 List of concept groups, schedule of concepts and/or table of concepts

4.091.11 List of concept groups

At the beginning there should be a classified list of concept groups (sections, clauses, etc.)

Example: The Machine Tool [44]

PRINCIPAL SECTIONS OF THE VOCABULARY

UDC	SECTION	KEY-NUMBER
5/6	**Physics and Engineering** (Common Concepts)	**1-2**
53	**Physics**	**3–92**
53.08	Measurement (in general)	3–19
531.1	Kinematics	20–33
531.2/.4	Statics and dynamics	34–44
531.7	Measurement of geometrical and mechanical magnitudes	45–77
532.2	Hydrostatics	78–79
539.4	Resistance	80–92
620.1	**Materials testing**	**93–107**
621.6	**Conduits and pumps**	**108–159**
621.75	**Sizes and fits**	**160–206**
621.8	**Machine elements**	**207–805**
621.81	General concepts	207–210
621.82/.85	Means of power transmission (gearings)	211–597
621.88	Means of attachment	598–799
621.89	Lubrication	800–805
621.9	**Machine tools**	**806–1388**
621.9–18	Characteristic magnitudes	813–843
621.9–2/–4	Specific parts of machine tools	844–1051
621.9–5/–9	Operating and maintenance devices	1052–1323
621.9.0	General concepts relating to machine tools	1324–1332
621.91/.97	Methods of working a piece	1333–1388
658.51	**Production planning**	**1389–1397**
667.6	**Paints**	**1398–1399**
669	**Metallurgy**	**1400–1401**

4.091.12 Table of concepts

If possible one or more graphical representations - tables of concepts- should be included. A table of concepts helps to get a general view of the conceptual field covered (see 3.521 and 3.522).

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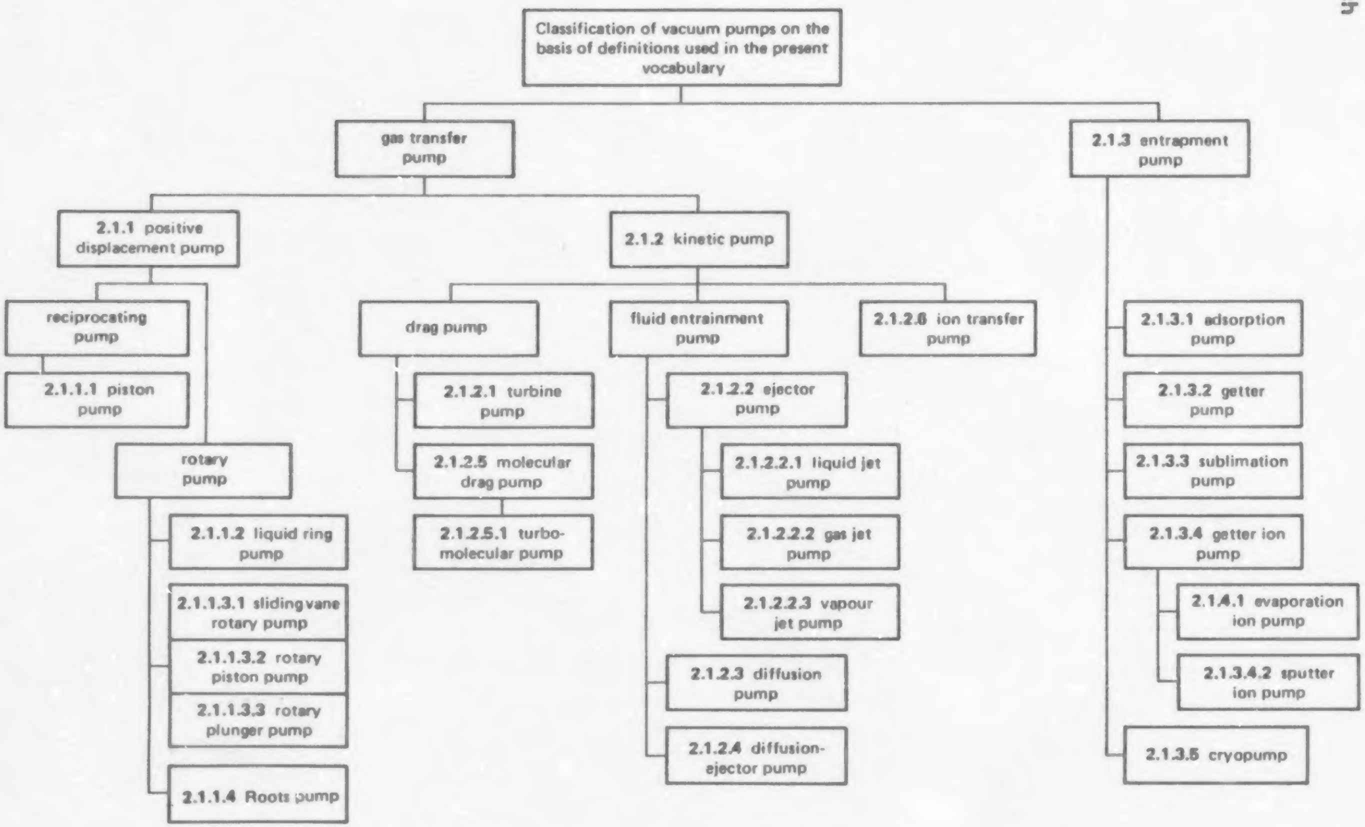
Annex A

Classification table of vacuum pumps

A.1 English


Classification of vacuum pumps on the basis of definitions used in the present vocabulary
gas transfer pump
2.1.3 entrapment pump
2.1.1 positive displacement pump
2.1.2 kinetic pump
reciprocating pump
2.1.1.1 piston pump
rotary pump
2.1.1.2 liquid ring pump
2.1.1.3.1 sliding vane rotary pump
2.1.1.3.2 rotary piston pump
2.1.1.3.3 rotary plunger pump
2.1.1.4 Roots pump
drag pump
2.1.2.1 turbine pump
2.1.2.5 molecular drag pump
2.1.2.5.1 turbo-molecular pump
fluid entrainment pump
2.1.2.2 ejector pump
2.1.2.2.1 liquid jet pump
2.1.2.2.2 gas jet pump
2.1.2.2.3 vapour jet pump
2.1.2.3 diffusion pump
2.1.2.4 diffusion-ejector pump
2.1.2.6 ion transfer pump
2.1.3.1 adsorption pump
2.1.3.2 getter pump
2.1.3.3 sublimation pump
2.1.3.4 getter ion pump
2.1.4.1 evaporation ion pump
2.1.3.4.2 sputter ion pump
2.1.3.5 cryopump

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4.091.13 Schedule of concepts

A schedule of concepts showing the classification of all the concepts dealt with in the vocabulary should precede the main part. The concepts here are symbolized by the corresponding preferred terms only. Their serial numbers or their classification symbols are added to these terms.

Example: The Machine Tool [46]

Sections of a schedule of concepts

UDC/CDU	Concept	Notion	Key Number Numéro de série
621.82	**Shafts and cranks**	**Arbres et manivelles**	
621.821	*Journals*	*Tourillons et pivots*	
621.821	journal	portée^{1} (d'arbre)	215
.821.2	journal for radial load; > end journal *or* > neck journal	portée radiale; > tourillon^{1}	216
.3	journal for axial load; > pivot-journal	portée axiale; > pivot^{III}	217
621.822	*Bearings*	*Paliers*	
621.822	bearing^{IIA}	palier	218
	active part /of a bearing/	garniture^{1A} (de palier)	219
	bearing housing /independent/	^{A}corps de palier^{A} /logement/	220
	boss /of a fixed part/	bossage /de palier/	221
.822.2 f1	journal bearing	palier à charge radiale	222
f11	pillow block	palier à patins	223
	pedestal body	^{B}corps de palier^{B} /partie inferieure d'un logement/	224
	bearing cap	chapeau de palier	225
f2	thrust bearing	palier de butée	226
f21	single-thrust bearing	butée simple	227
f22	double-thrust bearing	butée double	228
f3	radial-thrust bearing	palier à charge mixte	229
f4	fixed bearing	palier fixe	230
	floating bearing	palier libre	231
.5	sliding bearing	palier lisse	232
	bearing bush^{I}	coussinet^{A} (de palier)	233
f1	bushing; bush^{II}	bague de palier	234
	split tapered bushing	bague élastique	235
	guide bushing	bague de guidage	236
f2	sleeve bearing; bearing^{IIB}	coussinet^{A} en deux pièces	237
	half bearing	coussinet^{B} (> inférieur *ou* > supérieur)	238
	supporting shell	coquille de coussinet	239
	bearing lining	revêtement d'antifriction	240
f3	bearing metal	métal antifriction	241
	lining metal	métal pour garnir les coussinets	242
	white metal; babbit	métal blanc; régule; babbitt	243
.52	sliding bearing pillow block	palier lisse à chapeau	244
.5,8	step; > bearing disc or > collar step	grain de crapaudine	245
	thrust washer	rondelle de butée	246
.6	antifriction bearing (with housing)	palier à roulement	247
	antifriction bearing	roulement^{2I}	248
	radial antifriction bearing	roulement^{2I} radial; roulement^{2II}	249
	antifriction thrust bearing	roulement^{2I} axial	250
	tapered adapter sleeve	manchon conique de serrage	251
.7	ball bearing	roulement^{2I} à billes /radial ou axial/	252
.74	ball journal bearing	roulement^{2II} à billes /radial/	253
	deep-groove ball-bearing	roulement^{2II} à billes à gorges profondes	254
	radial angular contact ball bearing	roulement^{2II} à billes oblique	255
	self-aligning radial ball bearing	roulement^{2I} radial à rotule sur billes	256

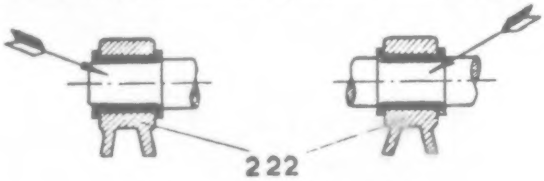
4.091.2 Items in classified order

Example of main part (WÜSTER, E. The machine tool)

216 UDC 621.821.2

journal for radial load; > **end journal** or > **neck journal:** A journal (215) subjected to principally radial stresses. It may be placed at the end of the shaft ("end journal") or elsewhere ("neck journal").

portée (d'arbre) à charge radiale; portée radiale; > **tourillon^{1}:** ⌜Portée d'arbre (215) soumise à des efforts principalement radiaux. Un "tourillon" est une portée radiale, de section réduite, en bout d'un ⌜arbre droit (278) horizontal ou dans les parties non déportées d'un vilebrequin (280).

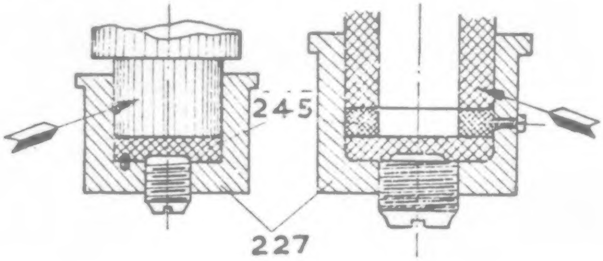


Vide spec. 282 (*fig.* 280)

217 UDC 621.821.3

journal for axial load; > **pivot-journal; pivot^{III}:** A journal (215) subjected to principally axial stresses. It is a "pivot-journal" when it is placed at the end of the shaft.

portée (d'arbre) à charge axiale; portée axiale; > **pivot^{II1}:** ⌜Portée d'arbre (215) soumise à des efforts principalement axiaux. Un "pivot^{II1}" est une portée axiale en bout d'un arbre vertical.



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4.091.3 Alphabetical index(es)

At the end of every classified collection of terminographical data an alphabetical index should be added for the language of the monolingual vocabulary or for each language of a multilingual vocabulary.

Every term will be marked by an appropriate serial number referring to the concept to which the term belongs

Presentation of terms

Decomposition of complex terms

For the benefit of the reader, complex terms composed of several elements should be introduced in the index at the place corresponding to each constituent part that the reader may look for.

The following is an example of the manner in which the three English terms clamp bolt, jack bolt and stud bolt may be presented in the alphabetical index (one of several possibilities).

bolt 650
- clamp bolt 950
- jack bolt 658
- stud bolt 682

clamp bolt 950

jack bolt 658

stud bolt 682

Readers are spared to refer to different pages, if homonyms are differentiated by superscripts and by short bracketed explanations.

Examples:

key^{1} (< fastening) 770
- parallel key 785
- round key 789
- Woodruff key 788

key^{2} (< spanner) 740
- Allen key 740
- chuck key 743
- hex key 741

gear^{I} (any transmission system) 211
gear^{II} (toothed wheel or rack) 378
gear^{III} (the larger gear) 380

For the same reason, it is often necessary to put behind the terms grammatical symbols such as m, f, n for the gender or a (= adjective), n (= noun), v (= verb), p (= participle).

Examples:

key v 773 (in opposition to key^{1} and key^{2}, see above)

grip s
- ball grip 1073
- avoid grip 1075
- tapered grip 1078

grip v
to grip in a chuck 975
to grip at one end 928

Alphabetical arrangement

Multilingual indexes

(1) In general, languages should not be mixed in indexes of vocabularies. If this is done nevertheless, the following international sequence should be observed in each vertical line: blank, cipher, letter.

Examples:

true 165
true to gage 165
trueness 164

2-hand control 1308
left-hand rotation 31
two-hand control 1308

The sequence of ciphers after one another, and of single Roman letters after one another is internationally established (0...9, a...z).

(2) Numbers composed of more than one digit have to be inserted according to their numerical value.

Example:

0,2 limit
2-hand control
100 years
left-hand rotation

(3) Diacritical signs and hyphens are at first to be neglected. They may be taken into account during a second step of ranging as follows: If two words differ only by the presence of a sign the word without a sign precedes; in accordance with the principle "nothing before something".

Examples:

F	tachant	Not:	tachant
	tache		tache
	tâche		tacher
	tacher		tacheter
	tâcher		tâche
	tacheter		tâcher
E	slide-key 477	Not:	slide-key
	slideway 520		slide-way
	slide-way 520		slideway

Monolingual indexes

(1) In monolingual indexes, the sequence of the elements has to follow the national standards.

Examples of national rules contrary to the international:

	National	International
	sequence	sequence
Sv	zulu	äfventyr
	Ångström	Ångström
	äfventyr	öde
	öde	zulu
S	luz	llama
	llama	luz
Cs	hysterický	chronický
	chronický	hysterický
	idyla	idyla
	rváč	The same as left
	řvač	
	rvati	
	syrup	šablona
	šablona	syrup
Hu	osztrak	Ödön
	Ödön	osztrak
	uzsora	üde
	üde	uzsora
	Zúgliget	zsemlye
	zsemlye	Zúgliget

(2) In case of doubt, the rules for multilingual indexes should be given preference to the national standards.

Example:

The German umlauts ä, ö, ü.

In some German speaking countries the international sequence (see above) is always applied, in other the umlaut letters are often ranged equally as ae, oe, ue. If a German language index is prepared by several German speaking countries it seems preferable to use the international sequences.

4.092 Thesauri

Thesauri are mostly composed of several parts.

4.092.1 Monolingual thesauri [47]

Monolingual thesauri can have the following parts:

- contents list
- introduction
- alphabetical display (see 4.081.3, Example 1)
- systematic display (see 4.081.3, Example 2) with alphabetical index
- graphic display (tree structure and/or arrowgraph)

Example: Thesaurus for engineering and scientific terms [48]

	Page No.
Foreword	iii
The Making of an Interdisciplinary Thesaurus	1
Description and Use of the Thesaurus	3
Thesaurus of Terms	7
Permuted Index	437
Subject Category Index	563
Hierarchical Index	623
Appendix 1 – Thesaurus Rules and Conventions	673
Appendix 2 – Sources of Terms Used in Data Bank	681
Appendix 3 – Participants	685

4.092.2 Multilingual thesauri /49/

Multilingual thesauri can have the following parts:

- contents list
- introduction
- alphabetical display (either with equivalents for all descriptors in parallel columns or in a single column with equivalents juxtaposed to each term) (see 4.082.4, Examples 1 and 2)
- systematic display (see 4.072.4, Examples 3 and 4)
- graphic display (tree structure and/or arrowgraph) (see 3.546)

4.10 CARD FILES FOR TERMINOLOGY AND THESAURUS PURPOSES

One of the most important tools for the terminology work as well as thesaurus work is the card file. The card file has the following merits:

(1) Any modification required during the preparation of the draft can be made by exchanging a single mansucript slip

(2) any set of slips representing a concept can be interpolated, removed and put in any other position

(3) a query and reply slip can easily be inserted into the file in any place.

A card file is the basis for the construction of a system of concepts. The term record (see 4.112), which serves as input sheet for the recording of terminological data by computer, is less suitable for any modification concerning individual data, since they comprise all data for an item. For this reason, term records are not so easy to handle as far as the shifting of individual data is concerned.

The card file represents the mansucript the data of which are transferred to term records for the input in the computer. It is also possible, that a trained data typist can input the data on-line via a VDU-terminal using a card file as a master.

A detailed description for the establishment of a card file and for the different slips is given in ISO/R 1149 /50/.

Examples for various types of slips are given as Annex 1.

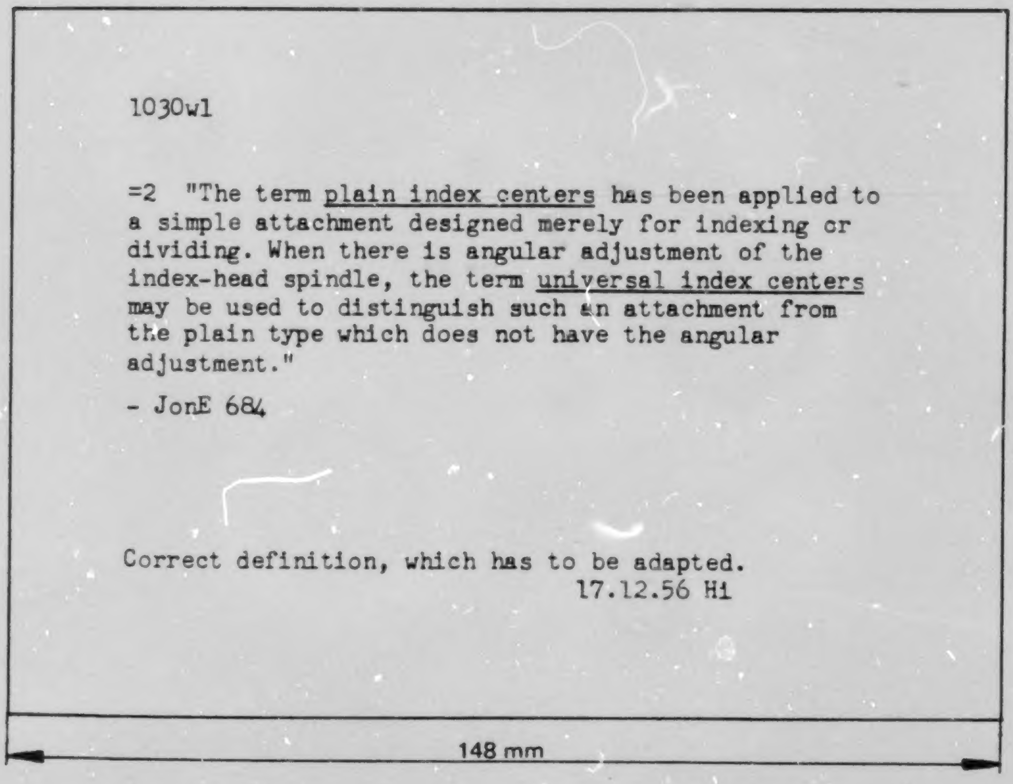
4.101 Terminology files

4.101.1 Card file

For every concept a set of manuscript slips is necessary:

- a slip for each language, containing the necessary terminographical data (terms, definitions - if included - and associated information, e. g. sources)
- a single slip containing the illustration (illustration slip)

A certain number of concepts will require extensive discussion and correspondence between authors and experts. A query and reply slip will assist these activities (see ISO/R 1149). See Annex 1.



1030wl

=2 "The term plain index centers has been applied to a simple attachment designed merely for indexing or dividing. When there is angular adjustment of the index-head spindle, the term universal index centers may be used to distinguish such an attachment from the plain type which does not have the angular adjustment."

- JonE 684

Correct definition, which has to be adapted.
17.12.56 Hi

Location slip (definition)

Example: Manuscript slips

The Machine Tool [51]

(Those parts of the text which do not appear in the final vocabulary are crossed out.)

~~BOB VT 1.~~ 267 UDC 621.822.87

~~2~~ taper roller bearing; tapered roller bearing ASA,
ISO: A ⌜radial antifriction bearing (249) in which
the rolling elements are cones (1043) inclined
towards their ⌜axes of rotation (29) ~√DIN. ◄
~~(ISO: name of a Sub-Committee† / ASA B3.4-1950 p.8;~~
~~ISO R 355/I, 1963 / ≠2 DIN 612 Bl.1, 1942 p.4 +~~
~~≠ BOI 3.61)~~

~~4. 5.52 Wü~~ ~~8.11.56 Wü~~
~~21.12.52 Be~~ ~~10. 2.59 TP~~
~~14. 2.53 Wü~~ ~~12. 2.59 Wü~~
~~21. 1.56 Hi~~ ~~28. 6.66 Pe/Vo +~~

An English-language Word Slip

~~BOB VT 1. 267~~ ~~UDC 621.822.87~~

~~4~~ roulement^{v1} radial à rouleaux coniques VSM;
roulement^{v2} à rouleaux coniques ISO, NF, VSM;
roulement (radial) à galets coniques: ⌜Roulement^{v1}
radial (249) dans lequel les corps insérés entre
les pistes de roulement sont des cônes (1043)
inclinés par rapport à ⌜l'axe de rotation (29)
~√DIN. ~~(VSM 15 710, 1953 p.1 / ISO R 355/I,~~
~~1963; NF E 22-331, 1938; VSM 15 715, 1934 p.1 /~~
~~Le.; Le. / e ≠2 DIN 612 Bl.1, 1942 p.4 + ≠ BOI~~
~~3.61)~~

~~4. 5.52 Wü~~ ~~9. 2.54 Wü~~ ~~14.5.63 Lg~~
~~9. 2.53 Wü~~ ~~13.12.55 Le~~ ~~28.6.66 Pe/Rt +~~
~~27. 2.53 Hi~~ ~~15.12.55 Wü~~
~~8.12.53 Wü~~ ~~23.10.58 Wü~~

A French-language Word Slip

~~BOB VT 1. 267~~ ~~UDC 621.822.87~~

~~3~~ (Radial-)Kegelrollenlager DIN, VSM; Ring-Kegellager. ~~(DIN 720, 1959; VSM 15 710,~~
~~1953 p.1 / DIN 612 Bl.1†, 1942 p.4)~~

~~27.4.52 Wü~~
~~9.2.53 Wü~~
~~9.2.54 Wü~~
~~17.3.66 Pe/Rt +~~

A German-language Word Slip

The following formats for manuscript slips are recommended:

ISO A 6 = 105 x 148 mm

ISO A 7 = 74 x 105 mm

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4.102 Thesauri

4.102.1 Card file

For the recording of terminological data to be included in thesauri, card files are used as well.

Example: ZIID. Methodische Rahmenregelungen zur Erarbeitung einsprachiger Informationsrecherchethesauren [Thesaurus guidelines. An introduction to thesaurus principles in theory and practice]. Berlin: Zentralinstitut für Information und Dokumentation der DDR, p. 32 - 33.

front page

1 term	2 descriptor	3 non-descriptor
4 notation or subject code	5 Russian	
	6 English	
7 use (descriptor)	notation or subject code of descriptor	
8 used for (non descriptor)		
9 BT		
10 NT		
11 RT	notation or subject code of RT	

back page

12 source		
13 definition/explanation		
14 frequency of use		
15 recording agency	16 date	17 recorder

4.11 COMPUTERIZED TERMINOGRAPHY

In the sixties various organizations in Europe started to computerize vocabulary items with the aim to have on the one hand a quick access to terminological data, which can be kept up to date very easily, and on the other hand to have the possibility to disseminate these data effectively and at low cost. Computerized terminography provides one of the best ways to perform terminographic work quickly and without mistakes [52].

Computerized terminography gave rise to the establishment of terminological data files and data banks in various countries of the world. Thus the terminological data bank has become a powerful tool for terminology information and documentation. International symposia on computerized terminography were held in 1975 [53] and on computerized terminology in 1978 [54] by the Technical University of Dresden (GDR). In 1976 a general survey of the existing terminological data banks and a list of publications on computer aided terminography was published as Infoterm Newsletter no. 1 [55]. A more detailed description of the data banks in existence was given in 1976 in the "World Guide to Terminological Activities" (Infoterm Series no. 4) [56] which was updated and stored on magnetic tape in 1983. An international bibliography on computerized terminography (BT 9) was prepared by Infoterm, which was published by Unesco [57] in 1984.

In the mid-seventies data banks also for standardized terminologies were set up [58] [59] [60]. In the recent past terminographical work is increasingly carried out with the assistence of the computer [61] [62]. It is to be hoped that in the near future more attention is directed to this new discipline, since a great number of problems have still to be solved. This requires a close co-operation of terminographers and computer specialists.

4.111 Collections of machine readable terminographical data

It has been recognized that most of the terminographical procedures for the production of vocabularies and dictionaries - from recording terminographical data to type setting - could be automated with the assistance of computers and computer controlled type setting.

In computerized terminography the terminographical data are recorded in machine readable form, processed following a certain instruction (programme by computer) and stored on an electronic data carrier. This form of storage allows a quick and efficient updating of the data. On this basis a comprehensive computer supported dictionary or vocabulary - a terminological data bank - made of collections of machine readable terminographical data is developed /63/. The data elements can be linked, arranged in horizontal or vertical series by means of logic operations laid down in form of a computer programme. In such a way the data existing in the bank can be brought into any desired terminographical order and layout for the production of vocabularies, term lists etc.

For computerized terminography, the terminological data banks are the basis for various operations, which were performed before manually. Different kinds of terminographic investigations and the presentation of vocabularies in the most appropriate form for the user are now made possible within a very short period of time with the aid of photo-typesetting. Since computerized terminography is still in development new terminological data banks for different requirements and purposes will arise. Terminological data banks will play an important role in combination with word processing for the observation of a unified terminology in extensive texts.

4.111.1 Different types of terminological data banks /64/

The terminological data banks can be classified according to the data stored in the terminological records (see 4.112) in:

(1) dictionary type banks which are translation oriented

(2) vocabulary type banks, which serve standardization and scientific purposes

Some existing banks are of a mixed nature, i.e. they include dictionary and vocabulary type records.

(1) Dictionary type banks

Dictionary type banks are at present primarily translation oriented. The terminological record is similar to that of a dictionary, i.e. the ordering element is a term or a phraseological unit with the corresponding foreign equivalents in one or more other languages. The individual record is grouped with other records in a subject group similar to documents, which are grouped in classes. The dictionary type bank consists of independent records. Connections of data elements of different records are indicated through references.

(2) Vocabulary type banks

The vocabulary type banks consist of records which are concept oriented. The terminological data of a concept with its interrelationships to the neighbouring concepts of the same subject field are given in the record. These data include a definition or at least an explanation of the concept. The record can be monolingual or multilingual. At present various standards organizations such as AFNOR (France) /65/, VNIIKI/GOSSTANDART (USSR) /66/, DIN/Siemens (FRG) /67/ and others have such banks for the standardized vocabularies in operation.

There is an urgent need for data banks usable for scientific purposes, which would complement the existing banks and information systems with specific scientific or technical data. They are an invaluable source for scholars, teachers, editors as well as for scientific, technical and professional organizations. The data of these banks are mostly the result of the work of terminology commissions, of scientific organizations, or of standards organizations.

They are therefore reliable and authoritative. These banks are the future tools for the unification in terminology. They are expected to play an important role in the transfer of science, technology and professional skills, in the research in artificial intelligence and in the development of expert systems (see 2.38).

4.112 Terminological record

The terminographical data are information units which are used in conventional and computerized terminography. Some data elements, however are only meaningful in connection with a terminological record of computerized terminography.

A terminological record is a structured list of terminographical data for one concept in one or more languages. It is divided into a number of data fields, so called categories. Data category means type of terminographical data such as term, definition, date of recording, etc. The structure of the record - its format - depends on the data bank in question. The individual data field can contain one or more terminographical data elements. Any data field has an address (tag) in order to enable the data to be retrieved. If more than one data element is in the data field each data element can be made addressable.

Each term element of a complex term in the data category "term" and the characteristics given in the category "definition" have to be addressable for sophisticated terminographical work.

In order to discuss a closer international co-operation in the field of computerized terminography, Infoterm convened the First International Conference on Terminological Data Banks which was held on 2 and 3 April 1979 in Vienna /68/. This conference adopted a certain number of recommendations; one of these reads that Infoterm should be asked:

> "to undertake or to arrange for a comparative study to be undertaken of the categories (data elements) employed in different term records for ordering and identifying terminological data".

Complying with this recommendation Infoterm convened an expert meeting dealing with terminological data elements which was held in 1980 /69/. This is the first outcome of the conference mentioned above. Other expert meetings were organized in 1981 and 1983. "Guidelines for recording of terminological data for machine processing" are in preparation.

An investigation into the data elements on the basis of the General Theory of terminology was performed by Infoterm (see 4.112.1) which could serve as a model. In addition a comparative study of the data elements used by important data banks was made (see Annex 2).

At present most data banks use a minimum set of terminological data elements. This is due to the fact that a great number of terminological data on individual concepts are not so easily available, since subject specialists preparing terminologies are only now starting to follow guidelines of modern terminology work which ensure the recording of an enlarged set of data elements such as relationships of concepts and other.

For practical reasons the majority of existing terminological data banks are tailored to suit translators. In the near future, however, the needs of subject specialists as well as scientific, technical and professional editors, and other academic experts will have to be considered as well. It is also to be expected that an analysis of the concept structure of individual subject fields and professional vernaculars will be deemed necessary for the advancement of knowledge. This development will provide the impetus for the establishment of terminological data banks which store data elements derived from a general theory of terminology. The collection and recording of terminological data of individual concepts is very time consuming and painstaking. Before this can be done the preparation of this data by specialists in the subject fields concerned is necessary. These data cannot be drawn solely from scientific, technical or professional literature.

The problem of preparing the terminological data and recording them in machine readable form as well as storing them in terminological data banks can only be solved by a co-operation of subject specialists and terminologists. As already mentioned a far greater number of terminological data elements for the big user groups, i. e. subject specialists, scientific and technical editors, will have to be recorded in future. A list of terminological data elements based on the general theory of terminology is given in 4.112.1. These data elements were compared with those used at present in existing terminological data banks, see Annex 2.

4.112.1 List of terminographical data elements based on the General Theory of Terminology /70/

For the registration of concepts terminological data elements and associated data are needed. They are combined in an item called terminological record (term record).

The terminological data elements mentioned below are based on the General Theory of Terminology (terminological principles), see Part 3. The possible ways of indicating the degree of equivalency when comparing similar concepts in different languages are given in 3.542.

There are two types of associated data:

(1) data which concern the record as a whole, called record information, and

(2) the information which concerns the individual terminological data elements.

The terminological data elements are to be classed in three groups for each language:

- linguistic symbols assigned to a concept
- linguistic description of a concept
- relationships between a concept and its neighbouring concepts

Each individual terminological data element of each of these groups should be followed by an associated information.

Multilingual terminological records include corresponding concepts of different languages, which are to be connected by their definitions. In most cases these concepts do not coincide, so the degree of equivalency has to be indicated. The unification of these concepts is a task of international standardizing committees such as the Technical Committees of the International Organization for Standardization (ISO) in Geneva and other competent international terminology commissions.

In the following the most important terminographical data for a sophisticated terminological record are given.

Symbols

Associated data

A = Authority symbol (ISO/R 639)
C = Country symbol (ISO 3166)
L = Language symbol (ISO/R 639)
S = Source (code following ISO/R 919)
N = Note (explication, restriction, evaluation of term - ISO 1951)

Relationships (see 3.4)

= equivalent (ISO 1951)

× overlapping (ISO 1951)

> less than (ISO 1951)

< greater than (ISO 1951)

≻– part (ISO 1951)

–≺ whole (ISO 1951)

‖ co-ordinated concept (logic relationship)

‖– co-ordinated concept (relationship whole-part)

Record information

000	record code
001	concept number
002	date of recording
003	recorder
004	classification symbol
005	...
006	source[1] (code as in ISO/R 919 item 2.1.5)
007	...
008	...
009	other information

1 First language

11 Linguistic symbols assigned to a concept

The form of the linguistic symbols should be as it appears in texts, i. e. no change of spelling and no capitalization of terms (see ISO 1951).

---

[1] For the sources giving the full bibliographic description a separate file is necessary.
Code symbols for the sources are recommended.
Example: MetM 3.89 = A.R. Métral, la Machine Outil, Tom III (Paris 1954), page 89.

110 term2) 4)
111 synonyms2) 4) (without specification 112 and 113)
112 preferred term3) 4)
113 admitted term3) 4)
114 abbreviation (or full form - if abbreviated form is given in 110)
115 deprecated term4)
116 ...
117 ...
118 ...
119 note

associated data

1100 A, C, L, N, S for 110
1110 A, C, L, N, S for 111
1120 A, C, L, N, S for 112
1130 A, C, L, N, S for 113
1140 A, C, L, N, S for 114
1150 ...

---

2) The type of term (obsolete, scientific, neologism, etc.) can be indicated by graphical symbols such as †, §, * etc. or letter symbols (ISO 1951).

3) The preferred term has to correspond to the definition (121). The concepts of synonyms, for instance admitted terms in comparison with definition (121) can have the following degree of equivalency:
= equivalent, × overlapping, > smaller intension, < larger intension,
≻ part, ≺ whole
This degree of equivalency should be indicated by the symbol in question.

4) The individual constituents of a complex term are to be separated by a separator so that they can be searched or listed independently.

12 Linguistic description of a concept

120 definition or explanation (without specification 121 or 122)
121 definition
122 explanation
123 context
124 figure
125 example
126 formula
127 ...

associated data
1200 A, C, S for 120
1210 A, C, S for 121
1220 A, C, S for 122
1230 A, C, S for 123
1240 A, S for 124
1250 S for 125
1260 A, S for 126
1270 ...

13 Relationships between a concept and its neighbouring concepts

130 broader concept (BT)
131 narrower concept (NT)
(without specification 132 to 138)
132 < genus
133 > species (1, 2, 3, etc.)
134 || co-ordinated concepts
135 -< whole
136 >- part (1, 3, 3, etc.)
137 ||- co-ordinated concepts
138 / or \ diagonal concept
139 other relationships (to be specified)

associated data

1300 A, C, S for 130
1310 A, C, S for 131
1320 A, C, S for 132
1330 A, C, S for 133
1340 A, C, S for 134
1350 A C, S for 135
1360 A, C, S for 136
1370 A, C, S for 137
1380 A, C, S for 138
1390 A, C, S for 139

2 Second language

The concept is compared to the definition of 121

The degree of equivalency can be indicated by:

(= equivalent, × overlapping, > subordination, < superordination, ≻ part, ≺ whole).

21 Linguistic symbols assigned to a concept

210 term5) 6)
211 synonyms5)6) (without specification 212 and 213)
212 preferred term6) 7)
213 admitted term6) 7)
214 abbreviation
215 deprecated term6)
216 ...
217 ...
218 ...
219 note

---

5) see note 2)
6) see note 4)
7) see note 3)

associated data

2100	A, C, L, S for 210
2110	A, C, L, S for 211
2120	A, C, L, S for 212
2130	A, C, L, S for 213
2140	A, C, L, S for 214
2150	...
2160	...
2170	...

22 Linguistic description of a concept

220	definition or explanation (without specification 221 and 222)
221	definition
222	explanation
223	context
224	figure
225	example
226	formula
227	...

associated data

2200	A, C, S for 220
2210	A, C, S for 221
2220	A, C, S for 222
2230	A, C, S for 223
2240	A, S for 224
2250	S for 225
2260	A, S for 226
2270	...

23 Relationships between a concept and its neighbouring concepts

230 broader concept (BT)
231 narrower concept (NT)
(without specifiction 232 to 239)
232 < genus
233 > species
234 ‖ co-ordinated concepts
235 —< whole
236 >— part
237 ‖— co-ordinated concepts
238 / or \ diagonal concept
239 other relationships (to be specified)

associated data

2300 A, C, S for 230
2310 A, C, S for 231
2320 A, C, S for 232
2330 A, C, S for 233
2340 A, C, S for 234
2350 A, C, S for 235
2360 A, C, S for 236
2370 A, C, S for 237
2380 A, C, S for 238
2390 A, C, S for 239

3 Third lanugage

analogous to first language.

4 Fourth language

analogous to first language.

5 Fifth language

analogous to first language.

Other languages can be added.

4.113 Recording of terminological data

The terminological and associated data, which are the result of terminology work, are either recorded on work sheets in form of term records (mostly in machine readable form) or recorded on-line using VDU terminals.

The term record representing one item is broken down into addressable categories of information. The form and sequence in which the data with their tags (data identification codes) are entered into the computer is called input format.

In the following examples for terminological records used in various terminological data banks are given.

4.113.1 Terminological records for terminology standards

4.113.11 DIN (Berlin, Germany)

DIN = Deutsches Institut für Normung (German Standards Institute)

The Language Services of Siemens AG Munich records for DIN the terminological data of the DIN standards.

Terminological record DIN (Chart of the used categories and their codes /71/)

TEAM Category (see 4.113.21)	MATER Category used by DIN (see 4.114)	Contents
00		Record number (address of the entry)
03	115	Stage of the standard (E = Proposal V = Draft Standard, N = Standard)
04	115	Date of issue of the standard, e. g. 0580 = May 1980
05	-	Pool code (data management)
06	110	Subject field (encoded)
07	940	UDC-number
09	-	Title of the standard (D)

TEAM Category (see 4.113.21)	MATER Category used by DIN (see 4.114)	Contents
10	300	Term (D)
11	510	Part of speech
12	115	Source (DIN-number)
13	113	Location (chapter and page)
14	402/404	Definition/Pseudodefinition. The pseudeodefinition is marked by a code symbol. A pseudodefinition is an explanation of some sort which is not included in the section "Concepts" of the standard.
15	-	Explanation/note on 10/14
16	602	Synonym(s); deprecated terms are marked accordingly.
17	432	Examples of 10/14/15
18	700	Genus of 10 (only the immediate genus is recorded)
19	434	Footnote(s) on 10/14/15/17
20	300	Term (E)
21	510	Part of speech (E)
22	115	Source
.	.	.
.	.	.
and so on		
3 n	-	French (n = 0 to 9; 0 = term; 1 = part of speech; and so on, like 10, 11, 12 ...)
4 n	-	Spanish
5 n	-	Russian
6 n	-	Italian
8 n	-	Dutch
73	440	usage restriction of 10
76	604	Quasisynonym(s) of 10

TEAM Category	MATER Category	Contents
77	790	Antonyms of 10 (not used hitherto)
95	710	species of 10
74	210	Cooperation partner of the committee of the standard
75	210	Cooperation partner of the committee
92	-	Title of the standard (English)
93	-	Title of the standard (French)
96	-	Bibliographic references
97	-	TC = Standard contains definitions TE = Standard contains the terminological data of a few concepts only TB = Standard contains only terms

Example [72]

00 AA0001
03 N
04 0480
05 DINP
06 E0290
07 001.4 : 003.62
09 Begriffsysteme und ihre Darstellung
10 Abstraktionsleiter
11 f.
12 DIN 2331
13 3.3.1. (S. 3)
14 Eine Abstraktionsleiter (logische Leiter, generische Leiter) ist eine Leiter, in welcher von zwei benachbarten Begriffen einer einen größeren, der andere einen geringeren Begriffsumfang hat, d. h. also der Begriffsinhalt sich in jeweils mindestens einem einschränkenden oder verallgemeinernden Merkmal unterscheidet.
16 Abstraktionskette; f; logische Leiter; generische Leiter
17 Beispiel1: absteigende Leiter
    Maschine
    Werkzeugmaschine
    Schleifmaschine
  Beispiel 2: aufsteigende Leiter
    Schleifmaschine
    Werkzeugmaschine
    Maschine
18 Abstraktionsbeziehung
74 105.00[Normenausschuß Terminologie (NAT) im DIN Deutsches Institut für Normung]
92 Systems of concepts and their presentation
93 Ensemble de notions liees et leur presentation
97 TE

4.113.12 Normaterm/AFNOR (Paris, France)

AFNOR = Association française de normalisation

In 1973 Normaterm - a bank for standardized concepts - was established with AFNOR (Paris, France). This bank records the terminological data of French standards as well as the French and English terminological data of multilingual terminology standards of ISO and IEC. The terminolgraphical data: French terms, English terms, standard number, date of issue, number of concept in the standard are published as "Index Normaterm" [73].

Terminological record NORMATERM [74]

```
                                                    ********************
                                                    *                  *
                                                    * NF  Z61-011      *
***********************************************************************
*    F 01   *   F 32    * F 04 *     F 05     * F 06    *  F 09 *
*           *           *      *              *         *       *
* FA 029670 * 11.07.02  * 3FD  *  NF Z61-011  * 19731200 *      *
*---------------------------------------------------------------------*
*          F 33                    F 34                      F 11     *
* DPB                   * E                  *       F               *
*---------------------------------------------------------------------*
* F 35 :          ISO 2382/XI-1976                                    *
*---------------------------------------------------------------------*
* F 36 :          TERMINAL (D'UTILISATEUR)                            *
*                                                                     *
*                                                                     *
*---------------------------------------------------------------------*
* F 37 :          (USER)TERMINAL                                      *
*                                                                     *
*                                                                     *
*---------------------------------------------------------------------*
* F 38 :          11.07.02                                            *
*                                                                     *
*                                                                     *
*---------------------------------------------------------------------*
* F 39 :          ORGANE D'ENTREE-SORTIE                              *
*                                                                     *
*---------------------------------------------------------------------*
* F 40 :          POST D'ENTREE DE DONNEES,                           *
*                 POSTE D'INTERROGATION                               *
*                                                                     *
*                                                                     *
*                                                                     *
*---------------------------------------------------------------------*
* F 41 :          MATERIEL DE TRAITEMENT DE L'INFORMATION;            *
*                 ENTREE DE DONNEES; SORTIE DE DONNEES; ORGANE        *
*                 D'ENTREE-SORTIE; TERMINAL DE DONNEES;               *
*---------------------------------------------------------------------*
* F 42:           ORGANE D'ENTREE-SORTIE A L'AIDE DUQUEL UN           *
*                 UTILISATEUR PEUT COMMUNIQUER AVEC UN SYSTEME        *
*                 DE TRAITEMENT DE L'INFORMATION;                     *
*                                                                     *
*                                                                     *
*                                                                     *
*                                                                     *
*                                                                     *
*                                                                     *
*                                                                     *
*                                                                     *
*************************************CREE  LE  76 11 15***************
```

F 01: standard register number

F 32: number of the concept in the standard

F 04 administrative aspects of the standard

F 05: standard index

F 06: date of standard

F 09: date of standard deleted

F 33: classification code

F 34: languages into which term is translated

F 11: original language of document

F 35: ISO standard containing the same concept

F 36: French term and synonyms

F 37: English terms and synonyms

F 38: concept number in the ISO quoted in _F 35

F 39: generic term(s)

F 40: specific term(s)

F 41: description of concept

F 42: definition of concept in French

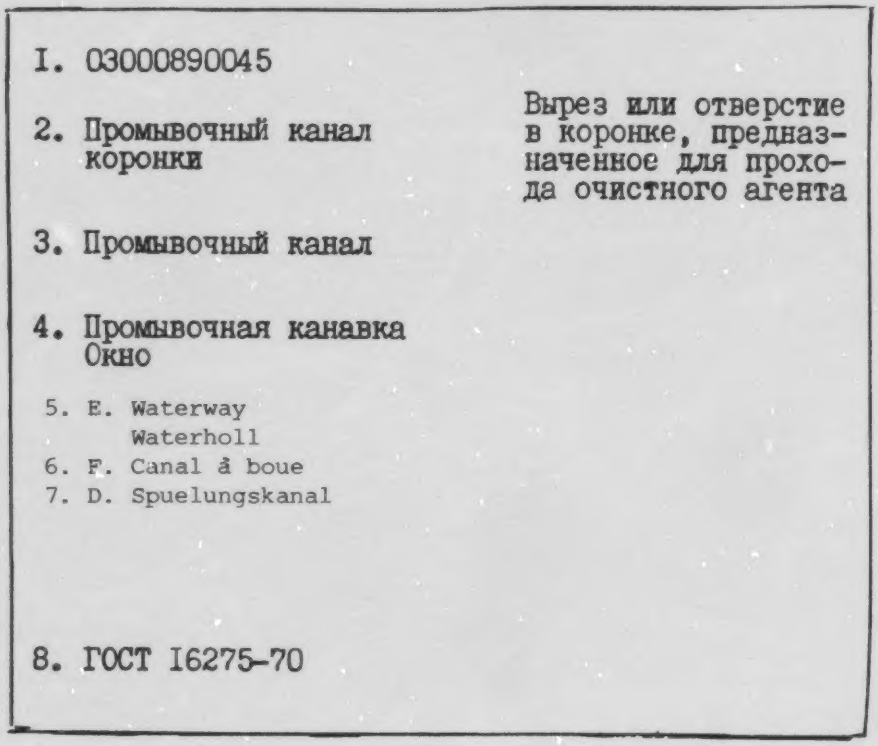
Code used for the representation of the types of synonyms and the grammatical aspects of a term

(ABR) = abbreviation
(ADJ) = adjective
(ADV) = adverb
/B/ = term used in Belgium
/CH/ = term used in Switzerland
(COL) = collective noun
(DS) = term which is not advisable to use in this sense
/GB/ = term used in the United Kingdom
(INV) = invariable word
(NFE) = feminine noun
(NIN) = invariable noun
(NMA) = masculine noun
(NOM) = noun
(NPR) = proper noun
(NS) = scientific term
(PLU) = plural
(PS) = term which should be avoided in this sense
(QUA) = determining element
(SIN) = singular
(TD) = inadvisible term
(TP) = deprecated term
(TS) = synonym
(TV) = obsolete term
/US/ = term used in the USA
(VER) = verb
(VIN) = intransitive verb
(VS) = obsolete term in this sense
(VTR) = transitive verb

4.113.13 SBT-ASITO/GOSSTANDART (Moscow, USSR)

In 1973 the Spravočnyj Bank Terminov (SBT), USSR [75] of the Automated Terminology Information Service (ASITO) was established with VNIIKI/GOSSTANDART (Moscow, USSR), which records the terminological data of Soviet standards, but also the data of multilingual terminology standards of ISO and CMEA (Council for Mutual Economic Aid) and some other national standards.

Example: SBT created a special terminological slip for machine processing [76]



I. 03000890045

2. Промывочный канал
коронки

Вырез или отверстие
в коронке, предназ-
наченное для прохо-
да очистного агента

3. Промывочный канал

4. Промывочная канавка
Окно

5. E. Waterway
Waterholl
6. F. Canal à boue
7. D. Spuelungskanal

8. ГОСТ I6275-70

For data elements see page 274

Terminological record

1 Record code
2 Standardized term with definition
3 Short form
4 Deprecated terms
5 English equivalent
6 French equivalent
7 German equivalent
8 Number of standard which prescribes the term

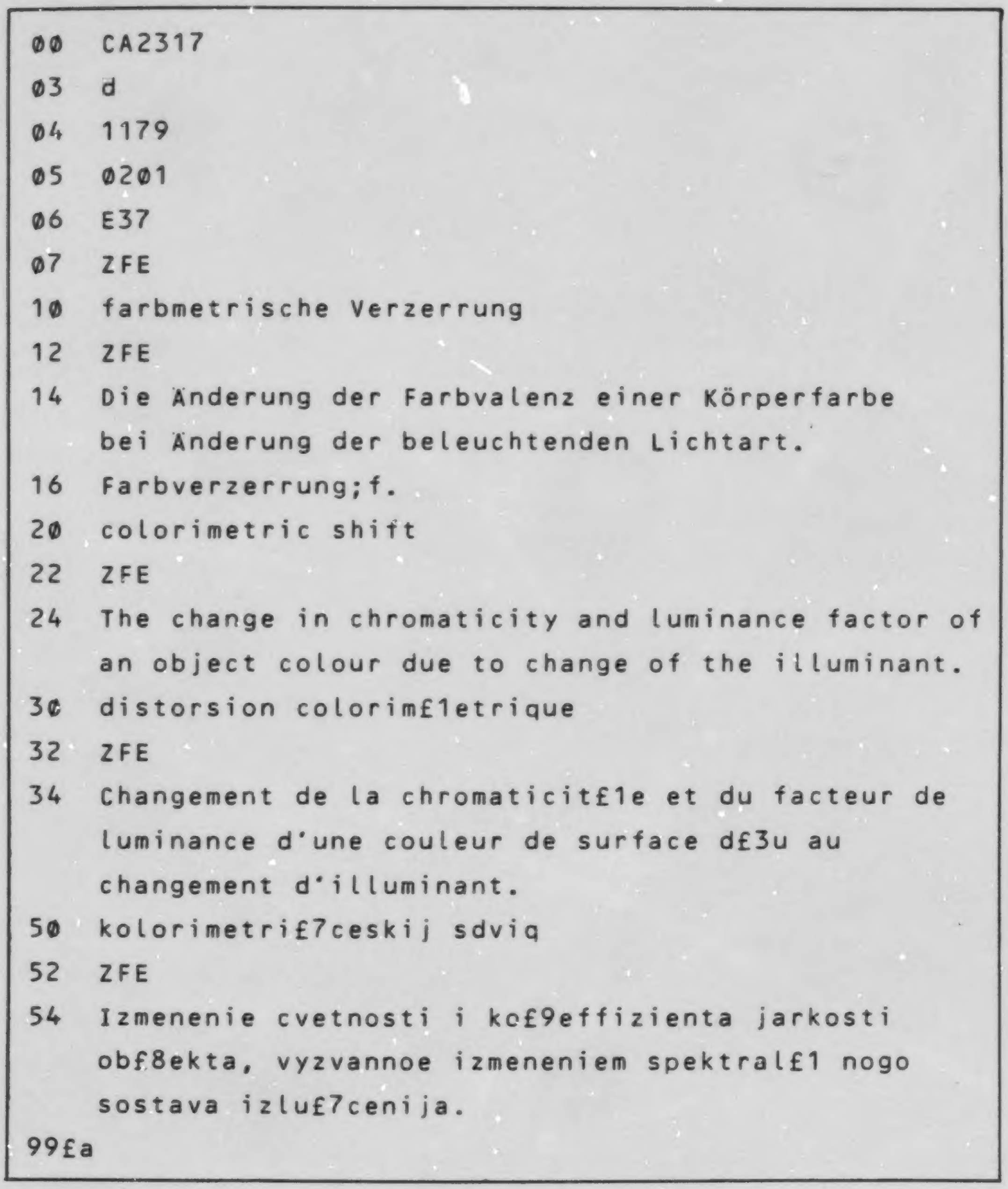
4.113.2 Terminological records for non-standardized terminologies

4.113.21 TEAM/Language Service, Siemens, Munich (FRG) /77/

Data elements of TEAM

00	number of entry
01	variable content
02	variable content
03	quality of entry
04	date of recording
05	code of reviewer
06	subject field
07	variable content
08	variable content
09	system
10	German term
11	genus
12	source of German term
13	variable content
14	definition
15	context
16	synonym
17	variable content
.	
.	
20	English term
.	
.	
.	
.	
30	French term
31	genus
32	source of French term
33	variable content
34	definition
35	context
36	synonym
37	variable content
.	
.	
.	
40	Spanish term
41	genus
.	
.	
50	Russian term
.	
.	
60	Italian term
.	
.	
70	Portuguese term
.	
.	
80	Dutch term
.	
.	
99	

Terminological record (input format) [78]

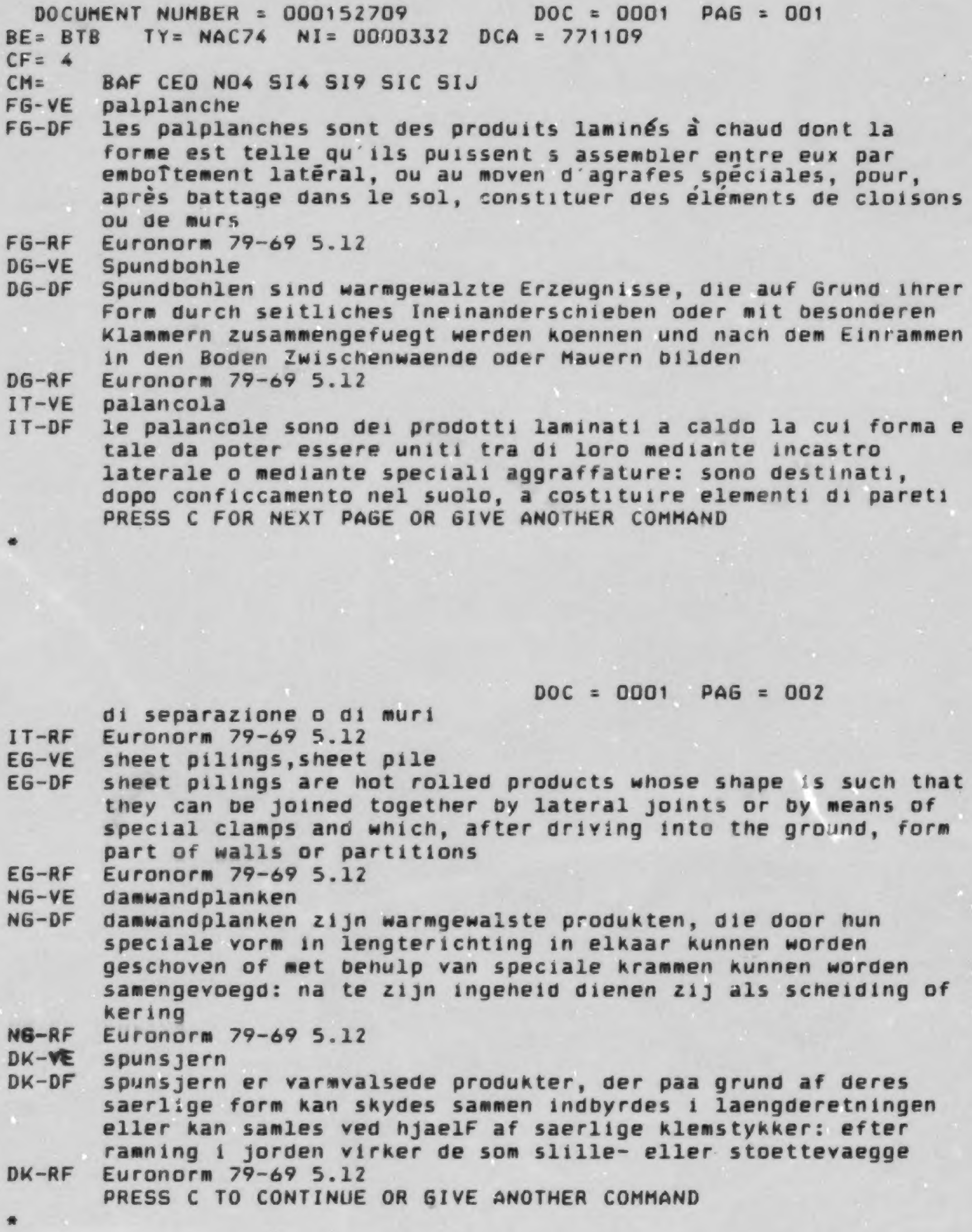


```
00  CA2317
03  d
04  1179
05  0201
06  E37
07  ZFE
10  farbmetrische Verzerrung
12  ZFE
14  Die Änderung der Farbvalenz einer Körperfarbe
    bei Änderung der beleuchtenden Lichtart.
16  Farbverzerrung;f.
20  colorimetric shift
22  ZFE
24  The change in chromaticity and luminance factor of
    an object colour due to change of the illuminant.
30  distorsion colorim£1etrique
32  ZFE
34  Changement de la chromaticit£1e et du facteur de
    luminance d'une couleur de surface d£3u au
    changement d'illuminant.
50  kolorimetri£7ceskij sdviq
52  ZFE
54  Izmenenie cvetnosti i ko£9effizienta jarkosti
    ob£8ekta, vyzvannoe izmeneniem spektral£1 nogo
    sostava izlu£7cenija.
99£a
```

Input format, OCR-B sheet

4.113.22 EURODICAUTOM/Commission of European Communities (CEC), Luxembourg

Terminological record [79]

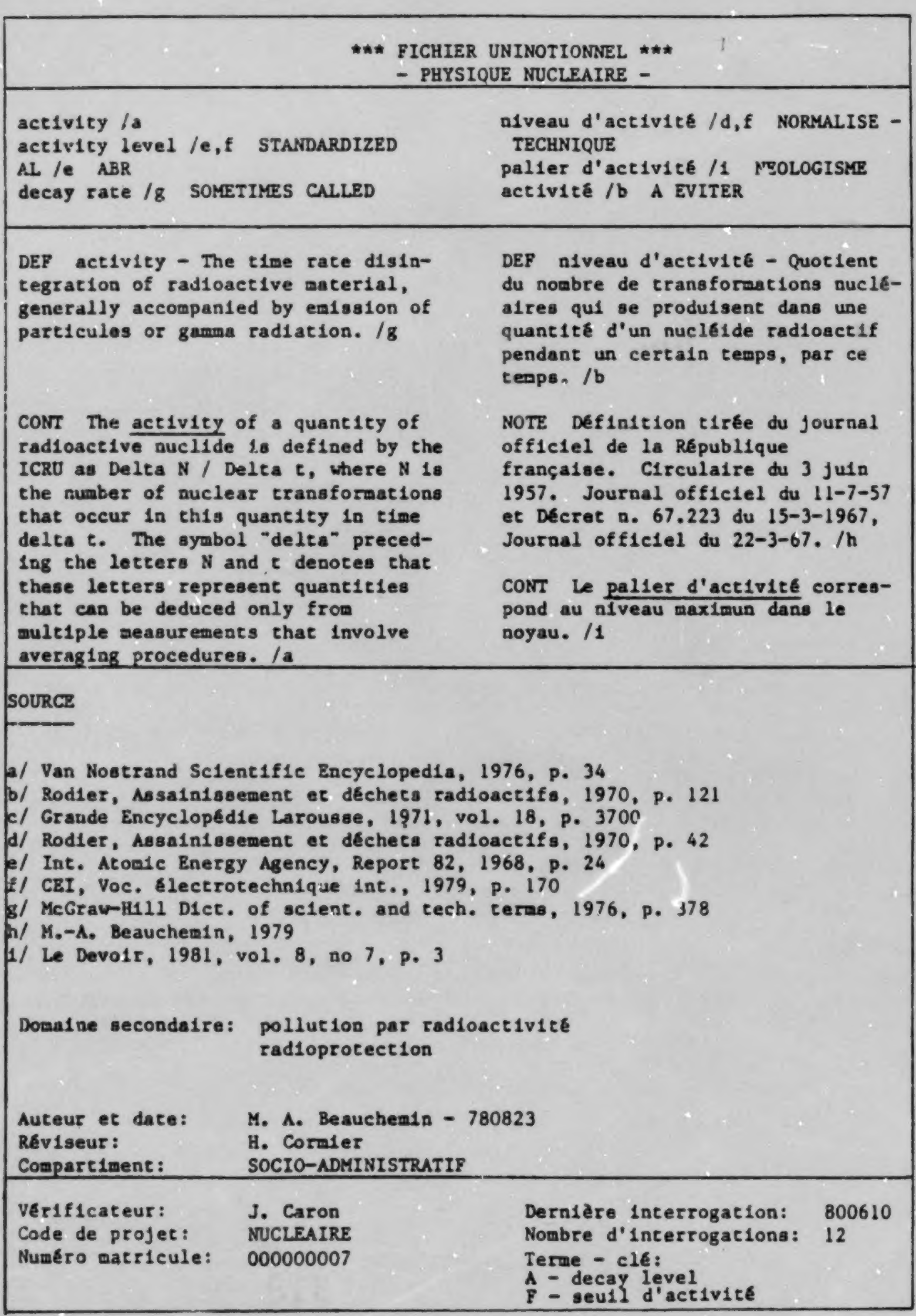


```
  DOCUMENT NUMBER = 000152709         DOC = 0001   PAG = 001
BE= BTB   TY= NAC74  NI= 0000332  DCA = 771109
CF= 4
CM=    BAF CEO N04 SI4 SI9 SIC SIJ
FG-VE  palplanche
FG-DF  les palplanches sont des produits laminés à chaud dont la
       forme est telle qu'ils puissent s assembler entre eux par
       emboîtement latéral, ou au moyen d'agrafes spéciales, pour,
       après battage dans le sol, constituer des éléments de cloisons
       ou de murs
FG-RF  Euronorm 79-69 5.12
DG-VE  Spundbohle
DG-DF  Spundbohlen sind warmgewalzte Erzeugnisse, die auf Grund ihrer
       Form durch seitliches Ineinanderschieben oder mit besonderen
       Klammern zusammengefuegt werden koennen und nach dem Einrammen
       in den Boden Zwischenwaende oder Mauern bilden
DG-RF  Euronorm 79-69 5.12
IT-VE  palancola
IT-DF  le palancole sono dei prodotti laminati a caldo la cui forma e
       tale da poter essere uniti tra di loro mediante incastro
       laterale o mediante speciali aggraffature: sono destinati,
       dopo conficcamento nel suolo, a costituire elementi di pareti
       PRESS C FOR NEXT PAGE OR GIVE ANOTHER COMMAND
*



                                      DOC = 0001   PAG = 002
       di separazione o di muri
IT-RF  Euronorm 79-69 5.12
EG-VE  sheet pilings,sheet pile
EG-DF  sheet pilings are hot rolled products whose shape is such that
       they can be joined together by lateral joints or by means of
       special clamps and which, after driving into the ground, form
       part of walls or partitions
EG-RF  Euronorm 79-69 5.12
NG-VE  damwandplanken
NG-DF  damwandplanken zijn warmgewalste produkten, die door hun
       speciale vorm in lengterichting in elkaar kunnen worden
       geschoven of met behulp van speciale krammen kunnen worden
       samengevoegd: na te zijn ingeheid dienen zij als scheiding of
       kering
NG-RF  Euronorm 79-69 5.12
DK-VE  spunsjern
DK-DF  spunsjern er varmvalsede produkter, der paa grund af deres
       saerlige form kan skydes sammen indbyrdes i laengderetningen
       eller kan samles ved hjaelF af saerlige klemstykker: efter
       ramning i jorden virker de som slille- eller stoettevaegge
DK-RF  Euronorm 79-69 5.12
       PRESS C TO CONTINUE OR GIVE ANOTHER COMMAND
*
```

4.113.23 TERMIUM/General Directorate, Terminology and Documentation,
Official Languages and Translation
Secretary of State, (Ottawa, Canada)
Terminological record [80]



1 - HEADING

*** FICHIER UNINOTIONNEL ***
- PHYSIQUE NUCLEAIRE -

2 - ENTRY TERM

activity /a
activity level /e,f STANDARDIZED
AL /e ABR
decay rate /g SOMETIMES CALLED

niveau d'activité /d,f NORMALISE - TECHNIQUE
palier d'activité /i NEOLOGISME
activité /b A EVITER

3 - TEXTUAL SUPPORT

DEF activity - The time rate disintegration of radioactive material, generally accompanied by emission of particules or gamma radiation. /g

CONT The activity of a quantity of radioactive nuclide is defined by the ICRU as Delta N / Delta t, where N is the number of nuclear transformations that occur in this quantity in time delta t. The symbol "delta" preceding the letters N and t denotes that these letters represent quantities that can be deduced only from multiple measurements that involve averaging procedures. /a

DEF niveau d'activité - Quotient du nombre de transformations nucléaires qui se produisent dans une quantité d'un nucléide radioactif pendant un certain temps, par ce temps. /b

NOTE Définition tirée du journal officiel de la République française. Circulaire du 3 juin 1957. Journal officiel du 11-7-57 et Décret n. 67.223 du 15-3-1967, Journal officiel du 22-3-67. /h

CONT Le palier d'activité correspond au niveau maximun dans le noyau. /i

4 - SOURCE

SOURCE

a/ Van Nostrand Scientific Encyclopedia, 1976, p. 34
b/ Rodier, Assainissement et déchets radioactifs, 1970, p. 121
c/ Grande Encyclopédie Larousse, 1971, vol. 18, p. 3700
d/ Rodier, Assainissement et déchets radioactifs, 1970, p. 42
e/ Int. Atomic Energy Agency, Report 82, 1968, p. 24
f/ CEI, Voc. électrotechnique int., 1979, p. 170
g/ McGraw-Hill Dict. of scient. and tech. terms, 1976, p. 378
h/ M.-A. Beauchemin, 1979
i/ Le Devoir, 1981, vol. 8, no 7, p. 3

5 - FIELD ORIGINATOR

Domaine secondaire: pollution par radioactivité
radioprotection

Auteur et date: M. A. Beauchemin - 780823
Réviseur: H. Cormier
Compartiment: SOCIO-ADMINISTRATIF

6 - ADMINISTRATION

Vérificateur: J. Caron
Code de projet: NUCLEAIRE
Numéro matricule: 000000007

Dernière interrogation: 800610
Nombre d'interrogations: 12
Terme - clé:
A - decay level
F - seuil d'activité

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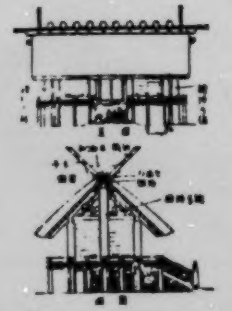
4.113.24 Technical University of Vienna (Austria)
Terminological record /81/

220405	010303	060307							
222411	124411	122111							
神	明	造	り						
212202	212100	242113							
SHIN	MEI	zuku	ri						

E	"Divine structure"
SYN	ISE*-Shrine-style
DEF LIT-CODE	A style of wooden construction used at the ISE*-shrine, defined by its proportions, structural system, form and materials. . . . . century
D	"Göttliche Konstruktion"
SYN	ISE*-Schrein-Stil
DEF LIT-CODE	Die beim ISE*-Schrein verwendete Art (Proportionen, Konstruktionssystem, Formensprache und Material) der Holzkonstruktion . . . Jh.

△ Term Code (serial nr.of cards



△ LIT.CODE: (of picture above)

◁ REF*: Term Codes

4.113.25 Cézeauterm/University of Clermont Ferrand (France)
Terminological record [82] (for explanation of field content,
see p. 281)

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CEZEAUTERM
ENREGISTREMENT TERMINOLOGIQUE

Champ	Longueur	Désignation du champ	Désignation des champs secondaires
01	fixe	Identification de l'enregistrement	1 - Organisme enregistreur 2 - Organisme collaborateur
02	fixe	Enregistreur	
03	fixe	Date d'enregistrement de la notion	
1	fixe	Domaine	
2	fixe	No de la notions dans le domaine	
10	fixe	Langue L1	
11	variable	Terme-entrée	
12	fixe	Indicatif grammatical	
13	fixe	Source	
14	fixe	Usage	
15	fixe	Caractéristique	
16	fixe	Abréviation	
17	variable	Remarque	
18	fixe	Lien notionnel	- Type de lien - notion supérieure (TP) - notion inférieure (TP) (répétitif) - notion horizontale (TP) (répétitif) - Type de lien - idem

Champ	Longueur	Désignation du champ	Désignation des champs secondaires
19	variable	Définition	
20	fixe	Source de la définition	
21	variable	Contexte	
22	fixe	Source du contexte	
111	variable	Equivalent 1 en L1	
112 à 122	...	Mêmes indications ...	
211	variable	Equivalent 2 en L1	
212 à 222	...	Mêmes indications ...	
1000	fixe	Langue L2	
1111	variable	Equivalent 1 en L2	
1111 à 1122	...	Mêmes indications	
1211 ...	...	Equivalent 2 en L2 ...	
2000 ...	fixe	Langue L3 ...	

EXPLICATION DES CONTENUS DES CHAMPS

01 - Identification de l'enregistrement (code) - Destiné à apporter aux utilisateurs ou aux organismes participant à des échanges des informations sur l'origine de l'enregistrement et d'une partie des données.

1. Organisme enregistreur. Le nom (code) du centre de terminologie responsable de l'enregistrement (EX = CEZ, DAN, ...)
2. Organisme collaborateur. Le nom (code) d'un organisme apportant sa compétence dans la réalisation d'un enregistrement (EX = LMS-CLER = Laboratoire de Mécanique des Sols de Clermont).

02 - Enregistreur (code) - La personne physique (code, initiales) ayant effectivement réalisé l'enregistrement. La formation est destinée à des vérifications internes à la banque et permet des contacts de personne à personne entre banques.

03 - Date d'enregistrement de la notion (code) - La date à laquelle la notion a été créée, même si l'enregistrement n'a pas été complété à cette date.

1 - Domaine (code) - Code du domaine auquel est rattachée la notion.

2 - No de la notion dans le domaine - Les numéros suivent l'ordre d'enregistrement des notions. Ils représentent l'entité "notion" à laquelle sont rattachés différents termes et informations.

10 - Langue 1 (code) - Une langue utilisée dans CEZEAUTERM - Code ISO R 639

11 - Terme-entrée - Un terme de la notion sous sa forme canonique. Pas de distinction majuscule/miniscule. Pas de signes diacritiques.

12 - Indicatif grammatical (code) - Indique la catégorie grammaticale à laquelle appartient l'entrée.

13 - Source (code) - La source peut être un organisme enregistreur (en cas d'échange), un organisme collaborateur ou un organisme normalisateur.

14 - Usage (code) - Par exemple: usage géographique: US, CAN, etc.

15 - Caractéristique (code) - Par exemple: terme préféré: TP, etc.

16 - Abréviation (code) - Comprend les formes abrégées et les sigles.

17 - Remarque - Toute remarque générale jugée utile.

18 - Lien notionnel (code)

- Type de lien: un des types de liens utilisés dans la banque
- Notion supérieure: la notion supérieure dans ce type représentée par un terme (TP)
- Notion inférieure: les notions inférieures dans ce type représentées par des termes (TP)
- Notion horizontale: les notions horizontales dans ce type représentées par des termes (TP)

19 - Définition - Définition en L1

20 - Source de la définition (code) - Comme en (13)

21 - Contexte - Contexte explicatif de longueur variable

22 - Source du contexte - Comme en (13)

111 - Equivalent 1 en L1 - Le premier terme équivalent en L1 au terme-entrée. Viennent en premier les équivalents qui sont des termes préférés (TP).

112 à 122 - Mêmes indications que de (12) à (22) pour le premier équivalent

212 à 222 - Mêmes indications que de (12) à (22) pour le deuxième équivalent

312 à 322 - ETC

1000 - Langue 2 (code) - La seconde langue utilisée dans CEZEAUTERM. Code ISO R 639

1111 - Equivalent 1 en L2 - Le premier terme équivalent en L2 ou terme-entrée. Viennent en premier les équivalents qui sont des termes préférés (TP).

1112 à 1122 - Mêmes indications que de (12) à (22), etc.

2000 - Langue L3 (code) - Eventuellement une troisième langue utilisée dans CEZEAUTERM, etc.

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4.113.26 TERMDOK/Swedish Centre for Technical Terminology, TNC
(Stockholm, Sweden)
Terminological record [83]

TERMDOK data elements

t00	project no
t01	term no
t02	date
a00	entry term
a01	reference
a02	synonym
a05	pronunciation
a06	paradigm
a07	grammatical notes
a10	group
a11	sorting order
a20	classification A
a21	classification B
a22	classification C
b00	English equivalent(s)
c00	French equivalent(s)
d00	German equivalent(s)
.	other languages
.	
.	
a50	definition (Swedish)
b50	definition (English)
.	
a60	remarks
a70	source
t10	comments
t20	illustration
t90	signature

4.113.27 DANTERM/Copenhagen School of Economics and Business Administration (Copenhagen, Denmark)
(Termbank in development)
The DANTERM record [84]

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II. THE DANTERM RECORD

The following list contains the information categories used for each term in a given language pair. The categories are described and discussed in more detail in the comments following the list.

1. Classification

DANTERM classification

Classification mark according to classification systems other than the DANTERM system

Name of project

2. TERM with additional information

Language
Term, main entry
Pronunciation
Full form
Abbreviated form
Alternative spelling
Grammatical information on the main entry
Language region
Special fields of application
Stylistic information
Sources
Comments on degree of equivalence
Information on reversibility

3. TEXTS

Definition
Explanation
Other Texts

4. Conceptual relations

Number or name of the system of concepts to which the information in this category refers
Position of the term in the system of concepts
References to further information
Broader term (generic relationship)
Broader term (part-whole relationship)
Broader term (no information on type of relationship available)
Narrower term (generic relationship)
Narrower term (part-whole relationship)
Narrower term (no information on type of relationship available)
Preceding term (in a successive relationship)
Succeding term (in a successive relationship)
Other relations
Antonyms

5. Synonyms

Synonyms
Quasi-synonyms

6. Comments

7. General information

Date of first input
Bureau of origin
Copyright
Name of terminologist
The date when the terminological input material was compiled
Working method
Information on up-dating

4.114 Exchange of terminological data

The exchange of terminological data is facilitated if terminological data banks receive the encoded data already on a magnetic carrier in an internationally agreed format. For this purpose ISO Standard 6156 "Magnetic tape exchange format for terminological/lexicographical records (MATER)" is in preparation by ISO/TC 37. This standard specifies the requirements for a format, the definition and the layout of terminological/lexicographical data on magnetic tape as well as the meaning and the tags (data identification code) associated to each element. It is at present in the stage of a Draft International Standard (DIS).

4.12 CONVENTIONAL AND COMPUTERIZED TERMINOLOGICAL DATA COLLECTIONS

Terminological data collections can assume the following external forms:

- card file
- printed form
- microfiche
- computerized file

In the near future the computerized file will be the master file from which the printed form and the microfiche can be produced. The card file will be only a preliminary stage prior to the production of a computerized file. The mini-computer will make it possible to develop a computerized card file for individual purposes. In the future minicomputers will be versatile enough to become a substitute for the card file used in terminology work.

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Annex 1

EXAMPLES OF LOCATION, WORD, ILLUSTRATION AND SYSTEM OF CONCEPTS SLIPS

267 *(running number)* UDC 621.822.87
(classification symbol)

taper roller bearing; tapered roller bearing
ASA, ISO: A ⌜radial antifriction bearing (249) in which the rolling elements are cones (1043) inclined towards their ⌜axes of rotation (29)~√DIN.

wüMT 8.77 *(code symbol for source)*

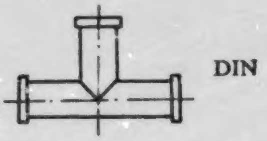
rt 1983 05 01 *(date)*

ITV 29.3-1970 *(code symbol for vocabulary)*

Word slip with definition

---

122 *(running number)* UDC 621.643.42.063
(classification symbol)



wüMT 8.36 *(code symbol for source)*

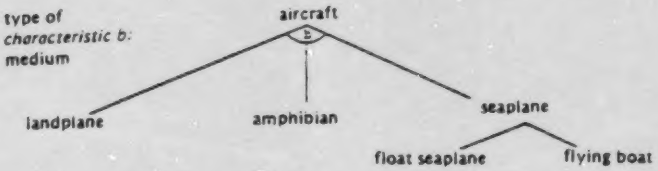
kx 1971 10 26 *(date)*

ITV 29.3-1970 *(code symbol for vocabulary)*

Illustration slip

---

41 *(running number)* UDC 629.13
(classification symbol)


type of
characteristic b:
medium
aircraft
b
landplane
amphibian
seaplane
float seaplane
flying boat

feSBI, 22 *(code symbol for source)*
mn 1984 08 15 *(date)*

IVA 10-1979 *(code symbol for vocabulary)*

System of concepts slip

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30 *(running number)* UDC 629.13
(classification symbol)

E mid-wing monoplane

BS 185 - Section 5-2: 1969 *(Code symbol for source)*

kg 1980 02 12
we 83 11 25
(recorder and date of recording)

IVA 10-1979 *(code symbol for vocabulary)*

Location slip

ECE VT 1. $\overline{\underline{267}}$ UDC 621.822.87

=4 roulement^{v1} radial à rouleaux coniques VSM; roulement^{v2} à rouleaux coniques ISO, NF, VSM; roulement (radial) à galets coniques: ⌜Roulement^{v1} radial (249) dans lequel les corps insérés entre les pistes de roulement sont des cônes (1043) inclinés par rapport à ⌜l'axe de rotation (29) ~√DIN. (VSM 15-710, 1953 p.1 / ISO R 355/I, 1963; NF E 22-331, 1938; VSM 15-715, 1934 p.1 / Le.; Le. / e %≙ DIN 612 Bl. 1, 1942 p.4 + % ECI 3.61)

14.5.63 Lg
28.6.66 Fe/Rt +

Integral record slip

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Annex 2

COMPARATIVE STUDY OF TERMINOGRAPHICAL DATA ELEMENTS USED IN IMPORTANT TERMINOLOGICAL DATA BANKS

This study was carried out in 1980. In the following tables the comparison is based on terminological data derived from general theory of terminology (terminological principles). These terminological data are used as reference data for the comparison with those data applied by individual terminological data banks.

In terminology the terminological data are recorded with associated data such as their date of recording, sources, classification, evaluation. The terminological data of a concept together with their associated data form a terminological record. The associated data may concern the record as a whole (data elements 000 to 009) or individual terminological data elements (C, L, R, S).

Since terminological data banks serve various purposes, their data structure is adapted to their respective needs. The analysis of their terminological records revealed sometimes such a large number of associated data that it was not possible to include all these data in the main table. Therefore all these associated data specific to individual data banks are given under the heading "data specific to individual data banks" at the end of the Annex. The main purpose of the individual data banks is indicated by a two-letter symbol (ST, RE, TR, TG, MP, PL) (see below).

The existence of a terminological data element is indicated by "x". The associated data of the individual terminological data elements are expressed by one-letter-symbols.

In the table the following symbols are used:

Associated data concerning individual terminological data elements

C = restriction to linguistic areas
L = language symbols

R* = reliability code
S** = source

Language symbols

Ar = Arabic
C = Chinese
D = German
Da = Danish
E = English
F = French
I = Italian
Nl = Dutch
R = Russian
S = Spanish
Sv = Swedish

Relationship of concepts

BT = broader concept
NT = narroer concept
< = genus
> = species
-< = whole
>- = part

Orientation of terminological data banks

ST = standardization
RE = regulation of terminology
TR = translation
TG = terminography
MP = multipurpose
PL = in planning

* The reliability code is either given for the whole record (see data element 005) or for the indivudual data elements in the associated data in the data element in question marked by R.

** The source is either given for the whole record (see data element 006) or for individual data elements in the associated data in the data element in question marked S.

	1	2	3	4	5	6	7	8	9	10	11
Terminological data and associated information	ST Normaterm (France)	ST SBT ASITO (USSR)	ST DIN/TERM (FRG)	RE,TR BTQ (Canada)	TR Termium II (Canada)	TR Eurodicautom (European Communities)	TR, TG TEAM (FRG)	TR LEXIS (FRG)	MP EWF (GDR)	TG TERM-DOK (Sweden)	PL UN
00 Record information											
000 record number	x	x	x	x	x	x	x	x	x	x	x
001 concept number	x	x	x	x		x	(x)		x	x	x
002 date of recording		x	x	x	x	x	x	x	x	x	x
003 recorder		x	x	x	x	x	x	x	x	x	x
004 classification	x	x	x	x	x	x	x	x	x	x	x
005 reliability code for whole record					x	x	x				x
006 source (ref.doc.) (for whole record)	x	x	x	x	x	x	(x)	x	x	x	x
007 type of document				x		x	(x)		x		
008 ...											
009 other information	x	x	x	x	x	x	x	x	x		x
1 First language	F	R	D	Source language E or F	E or F	E or F or D or I, or Da or Nl	D	E or F or I or Pt or R	D or E or F or R	Sv	E or F or S or R or Ar or C
11 Linguistic symbols assigned to a concept											
110 term	x			x	x	x	x	x	x	x	x
111 synonyms	x		x	x	x	x	x	x	x	x	x
112 preferred term		x	x				(x)			x	x
113 admitted term		x					(x)			x	
114 abbreviation	x	x	x	x	x	x	x	x	x	x	x
115 deprecated term	x	x	x		x		(x)	x		x	
116 obsolete term	x						(x)	x			
117 antonym							(x)	x	x		
118 qualification of syn	x		x	x	x		x		x		
119 note	x		x	x	x	x	x	x		x	x

Note: ( ) = the data element in question can be indicated; in some special cases it is mentioned, however generally it does not appear in the record.

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	1	2	3	4	5	6	7	8	9	10	11
associated information											
1100 term	LCS			LCSR	LCSR	LS	CS	LSR	LSR	S	LCSR
1110 syn.	LCS	S	S	LCSR	LCSR	LS	CS	LSR			LSR
1120 pref.term		S	S				(CS)				LCSR
1130 adm.term							(CS)				
1140 abbrev.	LCS	S	S		SC	LS	S				LCSR
1150 depr.term	LCS	S	S		S		(CS)				LCSR
1160 obsolete term	LCS						(CS)				
1170 antonym							(CS)				
1180 ...											
1190 note											
12 Linguistic description of a concept				Note: for each term and syn.							
120 definition or explan.				x	x	x	x		x		x
121 definition	x	x	x				(x)		x	x	
122 explanation			x				(x)		x	x	
123 context				x	x	x	x				x
124 illustration			x	x	x				x	x	
125 example			x		x		(x)				
126 formula							x		x		
127 note			x	x	x	x	x		x	x	x
associated information											
1200 def. or expl.				S	CSR		S				R
1210 def.		S	S				(S)				
1220 expl.			S				(S)				
1230 context				S	S		S				R
1240 illustration			S	S	S						
1250 example			S		S		(S)				
1260 formula							S				
1270 note											

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	1	2	3	4	5	6	7	8	9	10	11
13 Relationships of a concept to neighbouring concepts											
130 BT	x				x		(x)		x		x
131 NT	x				x		(x)		x		x
132 < genus			x								
133 > species			x								
134 ...											
135 ⤙ whole					x						
136 ⤚ part					x						
137 ...											
138 ...			x								
139 other relationsh.	x				x		(x)			x	
associated information											
1300 BT					S						
1310 NT					S						
1320 <			S								
1330 >			S								
1340 ...											
1350 ⤙					S						
1360 ⤚					S						
1370 ...											
1380 ...											
1390 other relationsh.											

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	1	2	3	4	5	6	7	8	9	10	11
2 Second language	E	E	E	target language	source language	E or F or D or I or Da or Nl	E	D	D or E or F or R	E	E or F or S or R or Ar or C
21 Linguistic symbols assigned to a concept											
210 term	x	x	x	x	x	the same data elements as the first language	the same data elements as the first language	x	the same data elements as the first language	x	the same data elements as the first language
211 synonyms	x	x	x	x	x			x		x	
212 pref.term											
213 adm.term	x										
214 abbrev.	x		x	x	x			x			
215 deprecated term			x		x			x			
216 obsolete term								x			
217 antonym								x			
218 qualification of syn.			x	x	x						
219 note			x		x			x			
associated information											
2100 term	LC		LS	LSCR	LSCR			LSR			
2110 syn.	LC		LS	LSCR	LSCR						
2120 pref. term	LC										
2130 adm.term	LC										
2140 abbrev.	LC		LS								
2150 depr.term			LS								
2160 obsolete term											
2170 antonym											
2180 note											

	1	2	3	4	5	6	7	8	9	10	11
22 Linguistic description of a concept				Note: for each term and syn.		the same data elements as the first language	the same data elements as the first language		the same data elements as the first language		the same data elements as the first language
220 def. or expl.				x	x						
221 definition			x								
222 explanation			x								
223 context				x	x						
224 illustration			x	x	x						
225 example			x		x						
226 formula											
227 note			x	x	x						
associated information for 2200 def. or expl.				S	CSR						
2210 def.			S								
2220 expl.			S								
2230 context				S	S						
2240 illustration			S	S	S						
2250 example			S		S						
2260 formula											
2270 note											

	1	2	3	4	5	6	7	8	9	10	11
23 Relationships of a concept to neighbouring concepts											
230 BT					x						
231 NT					x						
232 < genus			x								
233 > species			x								
234 ...											
235 -< whole					x						
236 >- part					x						
237 ...											
238 ...			x								
239 other relationships			x		x						
associated information for											
2300 BT					S						
2310 NT					S						
2320 <			LS								
2330 >			LS								
2340 ...											
2350 -<											
2360 >-					S						
2370 ...					S						
2380 ...											
2390 other relationsh.			LS								

	1	2	3	4	5	6	7	8	9	10	11
3 Third language		F	F			E or F or D or I or Da or Nl	F		D orE or F or R	F	E or F or S or R or Ar or C
31 Linguistic symbols assigned to a concpet											
310 term		x	the same data elements as the first language			the same data elements as the first language	the same data elements as the first language	not applicable	the same data elements as the first language	x	the same data elements as the first language
311 synonyms		x								x	
312 preferred term											
313 adm. term											
314 abbrev.											
315 deprecated term											
316 obsolete term											
317 antonym											
318 qualification of syn.											
319 note											
associated information for 3100 ...											
3110 ...											

	1	2	3	4	5	6	7	8	9	10	11
32 Linguistic description of a concept											
320 def. or expl.						the same data elements as the first language	the same data elements as the first language	not applicable	the same data elements as the first language		the same data elements as the first language
321 def.											
322 expl.											
323 context											
324 illustration											
325 example											
326 formula											
associated information for											
3200 ...											
3210 ...											
....											
3260											
33 Relationships of a concept to neighbouring concepts											
330 BT											
331 NT											
....											
339 other relationships											
associated information for											
3300 BT											
3310 NT											
...											
3390 other relationsh.											

	1	2	3	4	5	6	7	8	9	10	11
4 Fourth language		D	S			E or F or D or I or Da or Nl	S	not applicable	D or E or F or R	D	E or F or S or R or Ar or C
41 Linguistic symbols 410 term 411 synonyms		x x	the same data elements as the second language			the same data elements as the first language	the same data elements as the first language		the same data elements as the first language	x x	the same data elements as the first language
42 Linguistic description 420 def.or.expl. 421 def.											
5 Fifth language			R			E or F or D or I or Da or Nl	R	not applicable			E or F or S or R or Ar or C
51 Linguistic symbols 510 term 511 synonyms			the same data elements as the second language			the same data elements as the first language	the same data elements as the forst language		any other language can be added	other languages possible	the same data elements as the first language
52 Linguistic description 520 def. or expl. 521 def.											

		1	2	3	4	5	6	7	8	9	10	11
6	Sixth language			I			E or F or D or I or Da or Nl		not applicable			E or F or R or Ar or C
61	Linguistic symbols 610 term 611 synonyms			the same data elements as the second language			the same data elements as the first language	any other language elements can be added			other languages possible	the same data as the first language
62	Linguistic description 620 def. or expl. 621 def.											
7	Seventh language			Nl					not applicable			
71	Linguistic symbols 710 term 711 synonyms			the same data elements as the second language								
72	Linguistic description 720 def. or expl. 721 def.											

Data specific to individual data banks

1 Normaterm, Association française de normalisation, Paris, France

Foundation: 1975

00 Record information

009 other information

reference number of standard
date of issue of standard
date of annulation of standard
administrative code of standard
translation languages of term
original language of document
ISO standard having the same concept

11 Linguistic symbols assigned to concept

118 qualification of terms and synonyms; grammatical features

ABR = abbreviation
ADJ = adjective
ADV = adverb
/B/ = term used in Belgium
/CH/ = term used in Switzerland
COL = collective noun
DS = deprecated term in this sense
/GB/ = term used in United Kingdom
INV = invariable word
NFE = feminine noun
NIN = invariable noun
NMA = masculine noun
NOM = noun
NPR = proper noun
NS = scientific name
PLU = plural
PS = term to be avoided in this sense
QUA = qualifier
SIN = singular
TD = deprecated term

TP = term to be avoided
TV = obsolete term
/US/ = term used in USA
VER = verb
VIN = intransitive verb
VS = obsolete term in this sense
VTR = transitive term

12 Linguistic description of concept

description of concept by descriptors

13 Relationships of concept to neighbouring concepts

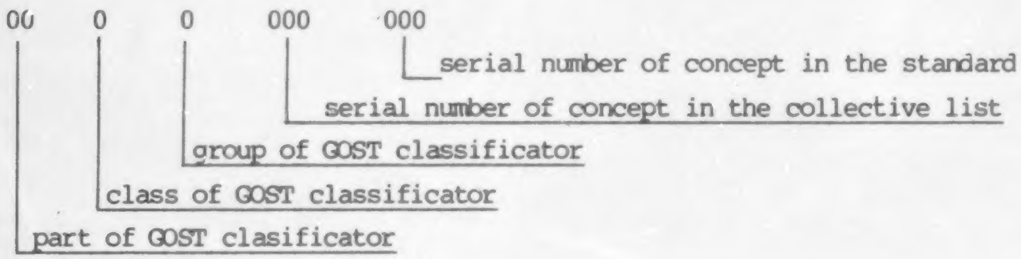
associated data

identical or analogous term <
in the same standard
in another standard

2 Spravočnyj bank terminov - avtomatizirovannyj sistem informacionno - terminologičeskogo obsluživanija (SBT ASITO) /Terminological data bank - Automated system of the terminological information service/ GOSSTANDART, VNIIKI, Moscow, USSR. Foundation: 1974

00 Record information

reference number of standard
date of issue of standard
date of annulation of standard
validity period of standard
type of standard (GOST, Sborniki, SEV)
structure of record number:


00 0 0 000 000
serial number of concept in the standard
serial number of concept in the collective list
group of GOST classificator
class of GOST classificator
part of GOST clasificator

13 Relationships of concept to neighbouring concepts

The concepts in the standards are in classified order.

3 TERM - DIN Deutsches Institut für Normung, Berlin FRG
(The data are processed by Siemens, Munich, FRG). Foundation: 1976

00 Record information

reference number of standard (DIN or VDE)
date of issue of standard (DIN or VDE)
date of annulation of standard (DIN or VDE)
bibliographic description of standard (DIN or VDE)
bibliographic description of concept (item, page, concept number)
status of standard (draft, standard, preliminary standard)
indication of pool
UDC number
responsible Technical Committee(s)
indication: Terminological standard with terms and definition (TD)
Terminological standard with terms (TB)
Standard comprising some terms with definitions (TE)
indication of those data elements which are modified
(B = term, D = definition, Q = quasi-definition, S = synonym)
copyright

11 Linguistic symbols assigned to concept

118 qualifications of terms and synonyms; grammatical features

adj = adjective
adv = adverb
f = feminine
m = masculine
n = neuter
pl = plural
plt = plurale tantum

12 Linguistic description of concept

restriction of defintion (regional, temporary etc.)
qualification of description (illustration, similar to definition)

13 Relationships of concepts to neighbouring concepts
qualification of relationships

4 Banque de Terminologie du Québec (BTQ) - Office de la Langue Française (OLF), Québec, Canada. Foundation: 1973

00 Record information
secondary record (addition, modification, deletion)
indication of subject field (specific, associated)
use (profession, symbol of plant or organization)
date of updating
symbol of recorder
symbol of rewriter
date of rewriting

11 Linguistic symbols
grammatical features

12 Linguistic description
key words

5 Termium II - Secretariat of State, General Direction of Terminology and Documentation (GDTD), Ottawa, Canada. Foundation: 1970 (as Termium I at the University of Montreal)

00 Record information
translated term
source language
bibliographic description of document
author
editor
revisor
inspection
without quality code

11 Linguistic symbols

grammatical features: common noun, proper noun, adjective, adverb, verb, transitive verb, intransitive verb, preposition, conjunction, masculine, feminine, plural, singular

social level: literary, popular, familiar

frequency: seldom, less frequent, unused

evolution: obsolete, neologism, archaism

semantic level: abstract, concrete, pejorative, meliorative, figurative

style: jargon, scientific, technical, commercial name

indication of link: variant, latin term

12 Linguistic description

key words

13 Relationships

cause-effect

6 EURODICAUTOM - Commission of the European Communities, Luxembourg (Luxembourg) and Brussels (Belgium). Foundation: 1973 (first attempts to computerize vocabularies go back to 1964, project DICAUTOM and EUROTERM)

00 Record information

BE-Office which sends terminology

11 Linguistic symbol

each member of a complex term is recorded with the source

key words are taken from phrases for indexes

7 Terminologie-Erfassungs- und Auswertungsmethode (TEAM) /Terminology Evaluation and Acquisition Method/ - Siemens AG, Munich, FRG.

Foundation: 1966

Terminological data bank relying on a program system of its own. Mainly used as a machine aid to translation, also catering for translation departments of various cooperation partners. The system also provides for a lexicographic output unit for compiling technical dictionaries.

00 Record information

002 date of entry: if need be the date of checking of the entry (mostly of the whole pool) is indicated

003 recorder = pool-code, i.e. a code identifying the person responsible for the pool and the code of the pool (sub-set of data bank), to which the entry belongs

- Marking of a sub-set of a certain pool.
- Indication of a special application of the entry, for instance the term is assigned to a system, an apparatus, a project, a contract, etc.
  This is indicated side by side with the subject field.
- Indication of the project number, the appliance number etc.
- Information on the utilization of the entry (or the whole pool), for instance integration in a vocabulary

11 Lingustic symbols/

12 Linguistic description/

13 Relationships

- Creation of index keywords: either by special markings of components of complex terms or pharases in the term or synonym category; or by recording of keywords in an individual category.
- Indication of source language or translation direction(s), for instance prohibition of reversal of term equations or of an equation term-description.
- Indication of doubtful or restricted equivalence of concepts in different languages
- Indication of genus and species

8 Lexikographisches Informationssystem (LEXIS)[Lexicographical Information system] - Bundessprachenamt, Hürth, FRG, in operation since 1966

The data base is predominantly used as a computer aid to translation (CAT) and comprises bilingual entries from various foreign languages into German and from German into foreign languages (= English, French, Russian, Italian, Portuguese and Dutch). The greater part of the vocabulary originates as feedback from translations of a technical nature and is partly standardized on a national (e.g. by terminology committees) and international basis.

11 Linguistic Symbols:

Codes for source language, subject field, source and reliability of an entry.

No grammatical information as yet.

In 1980 a back-up system will be operational consisting of such terminological details as

definitions	up to three
examples of context	up to five
synonyms	up to three
antonyms	up to two
broader term	one
related terms	up to three
narrower terms	up to five
sources in full text	up to three

This additional information may relate either to source-language or target-language terms.

9 Elektronisches Wörterbuch der Fachsprachen (EWF) [Electronic Vocabulary of Special Languages] - Technical University, Institute for Applied Linguistics and Computer Centre, Dresden, GDR. Foundation: 1971

00 Record information

statistical data on queries
main subject field code
reference to other concepts (three for each concept possible)
standardized concept

11 Linguistic symbol

use of term
grammatical feature: masculine, feminine, singular, plural
direction of language relationship
word class (grammar): verb
reference to other term
clusterings

12 Linguistic description

category of concept
explanation of term (three for each word possible) in term oriented entry

13 Relationships

hierarchichal code

10 TERMDOC, Tekniska Nomenclaturcentralen (TNC), Stockholm, Sweden

Foundation: 1968

00 Record information

project no

11 Linguistic symbol

pronunciation
paradigm
grammatical notes

11 United Nations, New York-Geneva, in planning

00 Record information

originating unit (organization and service)
serial number (within each organization of UN)

11 Linguistic symbol

Type of term: general, geographical name, treaty or other

See: other term under which the other language equivalent(s) can be found

See also: related term, refers to a related concept

grammatical features

12 Linguistic description

scope notes

PART 5

PLANNING AND IMPLEMENTATION OF TERMINOLOGY PROJECTS

5 PLANNING AND IMPLEMENTATION OF TERMINOLOGY PROJECTS

5.0 GENERAL

Any terminology project necessitates both terminological and terminographic work, i.e. the application of terminological principles and of terminographic methods. The terminological principles were described in detail in chapter 3, the terminographic work in chapter 4. Any terminology project passes a number of stages, which require careful planning, preparation and implementation. All details of the various stages and the required results have to be decided on before the work begins. Any matters whose clarification is put off for later can cause time-consuming and costly modifications, corrections during the course of the project. As a terminology project involves the co-operation of a number of subject specialists and if possible the accompaning guidance of a professional terminologist or a subject specialist experienced in the application of terminological principles and terminographic methods the responsibilities, the decisions to be taken by the individual co-operators and the work to be executed in each stage by the individual co-operators have to be fixed before the project begins. In addition a time schedule for executing the whole project and each of its individual stages should be drawn up.

A detailed guide for the preparation of clasified vocabularies (example of method) was published as Recommendation ISO/R 919 /1/. The interlingual vocabulary "The Machine Tool" can serve as a model for multilingual terminology projects.

In the following an example for a terminology project is given, which is oriented towards the work of terminology commissions.

5.1 DECISIONS TO BE TAKEN PRIOR TO THE PROJECT

5.11 Defining the field of study

First of all the field of study in question has to be defined. It is not sufficient to provide a name for the field. If possible the extension of the field should be given as detailed as possible in sub-divisions and smaller divisions. Existing classification schemes (e.g. UDC) or classified tables of contents of text books on the respective subject should be consulted.

The field should be selected with a view to the number of concepts to be included. The number should not exceed several hundred concepts (top limit 1000 concepts).

5.12 Terminological and associated data

From the beginning a decision on the structure of the terminographical data collection (see 4.04) has to be taken. This includes the decision on the terminological data elements and associated data to be collected (see 4.05), recorded and stored in a card file. This card file can later on be computerized and exists then in form of term records on a magnetic tape or disc. The card file is necessary for the arranging and manipulating of individual data elements recorded on individual cards or slips in the course of terminology work. If a printed version of the terminological data collection is intended, the layout (see 4.04 to 4.09) has to be determined. This has implications on the terminological data to be collected. If the data are stored on magnetic tape for the production of a printed version, the agency processing the data has to be contacted at the beginning so that the feasibility can be checked and test runs made from the beginning.

5.121 Selection of terminological and associated data for a classified vocabulary (see 4.05)

The following list gives a selection of the most important terminological and associated data for an individual concept in a given language.

For a multilingual vocabulary the terminological data for a given concept in each language to be included in the vocabulary are needed. When comparing concepts in different languages (see 3.542) it will be found that the concepts compared are rarely identical. In this case the symbols given in ISO 1951 "Lexicographical symbols, clause 2.4 'Comparison of meanings'" indicate the degree of equivalency (see 3.544). The sequence of the data in an item can be found in 4.07.

(1) Recording date with indication of recorder
Example: 1979 06 02 Hi

(2) Serial number
A serial number denotes the place of an item in the sequence of all items of a vocabulary. Its purpose is to simplify the reference to items in the alphabetical index and in the definitions of other concepts (references), and to arrange slips in a file (see 4.072.2, example 1 and 4.091.3).

In general, serial numbers will be formed by the cardinal numbers 1, 2, 3, 4, etc. In certain cases, classification numbers may be used as serial numbers, if they are short enough (see 4.072.1, example 2).

(3) Classification symbol
The classification symbol denotes the place of a concept in a particular system of concepts; thus it is supplementary to the definition (see 4.072.1, example 2).

The elements of a classification symbol are generally numbers, letters and typographical signs. The classification symbol may be taken for example from the schedules of the UDC, Bliss, LC etc.

(4) Term(s) designating the concept
For each concept the assigned term(s) is (are) given, for multilingual vocabularies in several languages. All terms should correspond exactly to the definitions. Terms should not be listed with capitalized initial letters except in cases where spelling rules require it when used within a sentence.

(5) Synonymous terms
Admitted and/or deprecated synonymous terms should be given; quasi-synonymous terms should be marked by the symbol x or ⪥ , see 3.411.2 and 3.421.2.

(6) An explanation of the concept
A definition should be given for each concept, see 3.6. For multilingual vocabularies a definition need not be given in all languages of the vocabulary. Those languages in which the definition is given are

called the "languages of the definitions". The languages for which only terms are given are called "additional languages".

(7) Term in context

Sometimes the usage of the term in a context is given as an example.

(8) Illustration

Whenever useful, definitions should be accompanied by one or more illustrations, see 3.64. An illustration may be replaced by a reference to an illustration in another part of the same vocabulary. If a concept is followed by specific concepts, only the latter should be illustrated.

(9) Authority and country symbols

The scope of terms and definitions can be indicated by authority and country symbols respectively. These symbols can be found in ISO 639 "Symbols for languages and authorities" and ISO 3166 "Codes for the representation of names and countries".

(10) Language symbol

The languages should be indicated by language symbols given in ISO 639 "Symbols for languages and authorities", see 4.031.

(11) Explanatory notes

Sometimes explanatory notes on terms or definitions are necessary.

(12) Term designating the broader concept (for computerized file)

It can be a generic broader term (BG) or a partitive broader term (BP), see 3.411.1 and 3.421.1.

These concept relationships can be indicated by the following symbols:

Broader Concept Generic: BG or <
Broader Concept Partitive: BP or ⤙

(13) Term(s) designating concept(s) of the same abstraction level (for computerized file)

These are the terms designating concepts which form either a logical horizontal series of concepts or a partitive horizontal series of concepts, see 3.411.3 and 3.421.3.

These concept relationships can be indicated by the following symbols:

logical horizontal series of concepts: HGR or ||
partitive horizontal series of concepts: HPR or ||-

In computerized terminography this data element can be generated by computer.

(14) Term(s) designating the narrower concept(s) (for computerized file)

It can be a generic narrower term (NG) or a partitive narrower term (NP), see 3.411.1 and 3.421.1.

These concept relationships can be indicated by the following symbols:

Narrower Concept Generic: NG or ›
Narrower Concept Partitive: NP or ≻-

(15) Sources

The sources, where terms, definitions, illustrations have been found should be indicated. Frequently used sources should be given in abbreviated form, see Annex 1.

(16) Code symbol for the volume

A code symbol for the volume identifies the vocabulary if the items are on slips.

A code symbol for the volume might take, for example, the following form:
ITV 29.3-1970 (ISO Technical Vocabulary No. 29, Part 3)

5.13 Choice of languages

If a multilingual data collection is intended, the co-operation of subject specialists speaking the chosen languages has to be secured. A distinction will have to be made between the languages in which definitions are to be formulated (official languages of scientific, technical and professional organizations) and languages for which equivalents alone are given. It is inevitable to employ a specialist of the specific field whose mother tongue is the language used for the project. Care should be taken that the language variations of certain linguistic areas (e.g. French in France, Belgium, Switzerland, Canada) are considered.

5.14 Symbols to be used

A decision on the use of language and other lexicographical symbols should be taken. For this purpose the symbols listed in ISO 639 (language symbols) and ISO 1951 (lexicographical symbols) should be used whenever possible.

5.15 Guidelines to be applied

A very important point is the decision on the terminological principles (see 3), terminographic methods (see 4) and symbols to be used. In the light of a desired international unification of terminology work, particularly of the terminological data, those principles, methods and symbols should be preferred, which are internationally agreed upon, i.e. which can be found in ISO Recommendations and ISO Standards.

For specific projects it will be necessary to prepare guidelines. These guidelines should be in harmony with the ISO Recommendation and ISO Standards as much as possible.

5.2 USE OF TERMINOLOGICAL SOURCES

5.21 Publications as sources

For the preparation of terminographical data collections (see 4.04) the following publications are useful:

(1) standardized vocabularies
(2) terminological publications such as scientific and technical vocabularies and dictionaries as well as terminological theses etc.
(3) reference and text books, technical encyclopedias, as well as technical and industrial trade catalogues
(4) classification schemes, classified tables of concepts etc.

5.211 Standardized vocabularies

International and national standards are the most important terminological sources. Therefore Infoterm keeps the International Bibliography of standardized vocabularies up to date. This bibliography was published as Infoterm Series 2 /2/. It is also stored on magnetic tape.

5.212 Specialized vocabularies and dictionaries

Specialized vocabularies and dictionaries prepared by competent scientific technical and professional organizations are reliable terminological sources.

Unesco published in 1959 an international bibliography of monolingual glossaries /3/ and in 1969 a bibliography of interlingual scientific and technical dictionaries (in its fifth edition) /4/. Many national and international organizations publish bibliographies of mono- and multilingual vocabularies such as the United Nations in New York and Geneva and its specialized organizations (e.g. UNIDO) /5/ /6/, European Communities /7/, Union of International Technical Associations (UITA) /8/, Translation Bureau of Canadian Government, Wydawnictwa Naukowo-Techniczne (Warsaw) /9/ and others.

Infoterm prepares the systematic recording of all mono- and multilingual specialized vocabularies in machine readable form within TermNet Programme 3 (see 1.133). It is to be expected that in the years to come a bibliographic control of specialized vocabularies will be achieved within TermNet. The appearance of new specialized vocabularies is announced in BiblioTerm /10/.

5.213 Reference and text books

Text books are a very important source for terms and definitions alike.

5.214 Classification tables

Classification tables such as those of the Universal Decimal Classification or classified synopses of concepts should be consulted when constructing the system of concepts.

5.22 File of bibliographic references

Every publication used as a source for the projected vocabulary should be recorded on a bibliographical reference slip or card (see Annex 1).

The location of the source, the date on which it was inspected, and the signature of the researcher should also appear on the reference slip (see Annex 1).

On every bibliographical slip a code symbol for the processed source should be recorded. This symbol should be used in quotations on record slips or on manuscript slips (see Annex 1).

A possible code symbol might be the first three letters of the author's name and one letter taken from the source title.

Example:

MeM 3.89 = A.R. Métral, la Machine Outil, Tome III (Paris 1954), page 89. A more impressive code symbol is obtained by abbreviating only the title, e.g. Métral MO 3.89.

As a time-saving device, the code symbol, apart from being recorded on the bibliographical slip may be marked on the title page of the publication, in pencil if need be.

One set of bibliographical slips should be filed in classified order in accordance with the schedule of concepts (see 5.4), another in the alphabetical sequence of the code symbols.

Examples of bibliographic reference slips are given in Annex 1.

5.3 EXTRACTION OF DATA FROM SOURCES

Whenever a worker, in examing the collected sources (see 5.21), comes across a term, an example showing the use of a term, a definition or an illustration which has to be recorded either fully or only by a memorandum, the necessary details should be written on a "record slip".

According to the completeness of the quotation the record slip is either an "integral record slip" or a "location slip" only. A location slip shows only the term and where it was found, and perhaps also that a definition or an illustration is available from the same source, while a record slip shows the whole context and, if any, the illustration itself.

Examples of record slips are given as Annex 2.

5.4 DRAFTING A PROVISIONAL SCHEDULE OF CONCEPTS

The most important, but also the most time-consuming and difficult work is the construction of the schedule of concepts, which repesents the system of concepts (see 3.5). Therefore existing classification schemes should be carefully checked for their suitability of being used for the project in question. For the construction of the schedule of concepts the delimitation of each individual concept and the relationships to the other concepts (genus, species or whole part) have to be determined (see 3.4). It should be kept in mind that the types of characteristics (see 3.34) determine the structure of the schedule of concepts. The concepts will then be grouped according to the selected classification so that related concepts are arranged in a vertical and horizontal series.

In selecting the concepts one should distinguish between the following categories:

(1) specific concepts of the given field
(2) concepts exceeding the given field
(3) borrowed concepts

A restricted number of concepts exceeding the given field or borrowed concepts can be included.

For inclusion in the provisional schedule a term is selected. Only those synonymous terms should be listed, which are necessary for the identification of concepts. If for a given concept several synonymous terms are known, only as many of these should be listed in the provisional schedule of concepts as are essential to identify without ambiguity the concept in question.

As soon as the provisional schedule of concepts is completed, a classification symbol and serial numbers should be assigned to each concept. In the progress of work, interpolations might become necessary which can be indicated by lower case letters attached to the serial numbers such as 8a, 8b, 8c etc. After this, a further numeral can be added: 8a1, 8a2, etc.

For multilingual vocabularies the provisional schedule of concepts need not be drafted in several languages. If a full system of concepts at the time being is not possible for what reasons ever, the concepts should be grouped by subjects so that a rough concept classification is created. Within the individual groups the terms representing the concepts can be listed in alphabetical order. It will not be possible to integrate the concepts exceeding the field in question into the system. They should be put together in a group preceeding the system of concepts.

5.5 PREPARATION OF DEFINITIONS (EXPLANATIONS)

The relationship of concepts determines the distinct place of a concept in the system of concepts. The concept of this place is then described by a definition (enumeration of characteristics). If a system of concepts cannot or is not constructed explanations for the concepts can be given only.

5.6 SELECTION OF TERMS

On the basis of the definitions (explanations) the terms to be included in the vocabulary should then be selected, or in exceptional cases, coined.

For standardization synonymous terms which are in current use for a given concept, should be differentiated as follows:

- preferred terms,
- admitted terms,
- deprecated terms.

"Preferred terms" should conform as closely as possible to the terminological principles (ISO 704, see p. 78).

"Admitted terms" arise above all from the co-existence of internationally recognized foreign terms and native terms. In one case the foreign term, and in another the native term may be classified as the preferred term and sometimes both of them. Sometimes even abbreviations of preferred terms will belong to this category.

"Deprecated terms" are those synonyms that are either redundant or that violate any of terminological principles. Synonyms may be included for information or for the purpose of deprecating them. The use of a clear method of distinguishing deprecated terms from others is recommended. This can be done by placing them after the definition so as to separate them from the preferred term or by printing them in lighter type.

5.7 TERMINOLOGICAL DATA HANDLING

The terminological data (see 4.051) and their associated data (see 4.052) can be recorded on different data carriers:

for manual handling on:
- slips (for sheaf or card files)

for machine handling on:
- magnetic tapes
- floppy discs
- punch cards, tapes or discs
- OCR material

In the case of machine handling the input of data can be done on a visual display unit connected directly with the computer.

5.71 Manual handling of data

For manual handling, all data of a vocabulary item are recorded on a slip, which can also serve as basis for their printing in book form. Before recording the data, however, it is essential to take a decision concerning the external form and the layout of the vocabulary to be published. Aspects for multilingual terminographical data collections to be considered are:

- Alphabetic or classified order? (see 4.06)
- Should illustrations be included?
- What format should be adopted?
- Horizontal or vertical entries? (see 4.072)
- Which symbols should be used? (see 4.03)

5.72 Machine handling of data

For machine handling the following aspects should be taken into account:

The equipment and programmes for the recording of terminological data should meet certain requirements such as:

- the possibility to recognize spelling variants
- the possibility to correct the data of the items recorded independently of the position, so that parts of the text can be corrected, deleted, added in any chosen place of the item
- the availability of those sets of characters which are necessary to represent the terminological data to be recorded.

In addition it is essential that the data carriers to be used are compatible with the equipment to be used as regards format, character sets and coding.

When recording the data of an item it is necessary to ascertain that these data are appropriately structured for the processing by machine, i.e. that tags are assigned to each data element in form of categories and control characters, by which the content of categories can be found (see 4.113).

If items in machine-readable form are to be used for the production of a printed vocabulary, a decision on certain control characters for the typographic layout to be included in the text during the recording have to be taken. Such control characters are necessary for:

- sorting
- selecting
- the marking of specific type faces (italics, bold face)
- the marking of various types
- the arrangement of the text

  etc.

For a later display of data on a screen the inherent structure of the computer system to be used should be taken into account.

5.8 THE RECORDING OF TERMINOLOGICAL DATA

The terminological data can be recorded either on slips for manual handling in a sheaf or card file (see 4.101) or on worksheets and stored on a machine-readable data carrier for subsequent machine handling (see 4.113). The slips are still the most efficient tools for the drafting of a schedule of concepts (see 3.5).

5.81 The manual handling of terminological data - the preparation of the manuscript

5.811 Manuscript slips

For multilingual vocabularies in the language of the first draft a set of manuscript slips should be prepared for every concept. This set comprises a term slip for every language concerned as well as an illustration slip (see 4, Annex 1).. This set represents one item or term record.

These slips will bear the text in the language of the first draft and their completion is the first step.

For certain concepts, however, it may be desirable during preparation of a first draft in one language to record terms in other languages on separate term slips. These slips will remain incomplete at this stage.

Drafting of these manuscript slips should be started with the formulation of the definitions or explanations.

It must be determined if a definition, however good, may not be suitable for use in the vocabulary under preparation without some modification. All the definitions of a vocabulary should be worded so that they reflect a coherent system (see 3.65(3)).

Each time a term that has already been defined in the vocabulary is used in a definition, the reference number of the term should be quoted in brackets after it.

5.812 Manuscript slips in the other languages of definitions

The definitions (explanations) will finally appear in all other "languages of the definitions".
During the same stage the terms in the other languages of the definitions that correspond to the definitions must be found.
In addition to the slips made out in the language of the first draft, a separate manuscript slip for every concept should be made out in each of the languages in which the definitions are provided for.

5.813 Manuscript slips in the additional languages

On the basis of the definitions, it is necesary to obtain the terms in those languages of the vocabulary for which no definitions will be given in the final form (i.e. in the "additional languages").

A separate manuscript slip should also be made out for every concept in all additional languages, as has been done already in the language of the first draft and in the other languages of the definitions.

5.814 Final numbering

Throughout the preparation of the vocabulary, the provisional schedule of concepts (see 5.4) is subject to continual change. It may be considered final only if and when the draft is approved in all languages.

When this stage has been reached, final numbers should be allotted to all concepts. To do this, the provisional numbers in the final schedule of concepts should be crossed out and the final numbers be inserted next to them. The first concept in the schedule will be allotted the serial number 1, the next number 2, and so on.

5.815 Discussion manuscript

When the draft manuscript has been completed, it should be submitted to a number of persons for comment (see Annex 2).

5.816 Final manuscript

When all collaborators, to whom the discussion manuscript has been submitted, have made their comments, the final manuscript should be prepared.

5.82 The machine handling of terminological data

5.821 The preparation of term records or computerized data files

During the course of terminology work, various slips containing terms, definitions, illustrations will have to be modified, corrected and shifted to a different place. At this stage one works with slips filed in a classified order. As soon as the manuscript is finalized, its data are transformed into term records in order to be processed by computer. It is, however, also possible to have the input made online via a visual display unit. In such a way a computerized data file is produced, which serves as a basis for the production of magnetic tapes or discs, or for the printed documents by means of photo-composition.

5.822 Terminographic work

After having been stored in machine readable form, the terminological data can be used with the aid of the computer for a large variety of terminographic work such as:

- ordering of stocks of terms
- listing of terms in alphabetical or subject field order, according to term length and parts of speech etc.
- combination of terminological data for specific purposes
- composition of items and listing for a vocabulary, which can be produced by data bank controlled photo-typesetting
- statistics

The result of this terminographic work can be provided in printed form (hard copy, microform etc.) or displayed on the screen.

5.83 Alphabetical indexes

At the end of every classified collection of terminographic data an alphabetical index (see 4.091.3) should be added, listing all the terms contained in the main body. A separate index should be provided for each of the languages covered by the vocabulary. Every term will be marked by an appropriate serial number referring to the concept to which the term belongs.

(1) Sequence of characters

In monolingual indexes, the sequence of the characters should follow the national standards on alphabetical filing.

(2) Decomposition of complex terms

For the benefit of the reader, complex terms composed of several elements should be included in the index under each constituent part that the reader may look for.

(3) Machine handling of terminological data

When the terms are stored on machine readable data carriers alphabetical indexes can be produced automatically with computer assistance.

(4) Manual handling of terminological data

As soon as the preparation of manuscript slips in the first drafting language begins (see 5.811) a provisional alphabetical index file of the terms being considered should be established.

Advancement of the work will be greatly facilitated if it can be ascertained at any time whether a given term has already been recorded and if so in connection with which concept.

If several terms (i.e. synonyms) are recorded on the same manuscript slip, as many copies have to be made as terms are mentioned.

A separate index file should be prepared for every language.

When approximately 250 concepts have been processed, provisional alphabetical lists should be made out on the basis of the alphabetical index files. Copies of their alphabetical lists should be handed to collaborators to facilitate their work.

As the work proceeds, revised editions of the provisional alphabetical lists, each becoming more and more complete, should be made.

5.9 REFERENCES

/1/ ISO. Guide for the preparation of classified vocabularies (Example of method). Genève: ISO, 1969, 12 p. (ISO/R919-1969)

/2/ FELBER, H.; KROMMER-BENZ, M.; MANU, A. International bibliography of standardized vocabularies/Bibliograhie internationale de vocabulaires normalisés/Internationale Bibliographie der Normwörterbücher. 2nd ed. München/New York/London/Paris: K.G. Saur, 1979, 540 p. (Infoterm Series 2)

/3/ WÜSTER, E. Bibliography of monolingual scientific and technical glossaries. Vol. 1: National standards/Bibliographie de vocabulaires scientifiques et techniques monolingues. Vol. 1: Normes nationales. Paris: Unesco, 1955, 219 p.
WÜSTER, E. Bibliography of monolingual scientific and technical glossaries. Vol. 2: Miscellaneous sources/Bibliographie de vocabulaires scientifiques et techniques monolingues. Vol. 2: Sources diverses. Paris: Unesco, 1959, 146 p.

/4/ AAA. Bibliography of interlingual scientific and technical dictionaries /Bibliographie de dictionnaires scientifiques et techniques multilingues/Bibliographía de diccionarios científicos y técnicos plurilingües. 5th ed. Paris: Unesco, 1969, 250 p.

/5/ OFFICE DE NATIONS UNIES A GENEVE. DIVISION LINGUISTIQUE: Catalogue de la division linguistique. 3rd ed. Genève: UN, 1979, 422 p.

/6/ UN/ECE; INFOTERM. International Bibliography of multilingual building vocabularies. New York: UN, 1983, 277 p.

/7/ COMMISSION DES COMMUNAUTES EUROPEENNES. DIV. IX/D/3. Catalogue des ouvrages et des périodiques. Bruxelles: Bureau de terminologie, 1983, 478 p. (Document exclusivement interne).

/8/ UNION OF INTERNATIONAL TECHNICAL ASSOCIATIONS. Catalogue of multilingual technical vocabularies. Paris: UITA, 1981, 18 p.

/9/ WYDAWNICTA NAUKOWO-TECHNICZNE. Bibliographie der Wörterbücher/Bibliography of dictionaries/Bibliografia słowników/Bibliografija slovarej. 1945-1978. 9 vols. Warszawa: WNT, 1965/1981, 8537 entries.

/10/ INFOTERM; DOCUMENTATION DIRECTORATE OF THE TRANSLATION BUREAU - SECRETARY OF STATE. BiblioTerm. Ottawa: DGTD, no. 1(1983) ff. (irregular serial).

EXAMPLES OF BIBLIOGRAPHIC REFERENCE SLIPS

BS 185 *(code symbol for source)*

BSI. Glossary of aeronautical and astronautical terms.
London: BSI, 1970 (BS 185-1970)

ONv *(location of document)*

fe 1982 03 19 *(date)*

IVA 10-1979 *(code symbol for vocabulary)*

Bibliographic reference slip (standard)

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wüMT *(code symbol for source)*

WÜSTER, E. The Machine Tool. An interlingual dictionary of basic concepts / Dictionnaire multilingue de la machine-outil.
London: Technical Press, 1968, vol. 1, 765 p.; vol. 2, 160 p.

ONv *(location)*

ga 1982 02 12 *(date)*

ECE VT-1969 *(code symbol for vocabulary)*

Bibliographic reference slip (book)

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feSBI *(code symbol for source)*

FELBER, H. Some basic issues of terminology. The Incorporated Linguist 21 (1982), no. 1, p. 12-23.

ONv *(location)*

km 1983 11 02 *(date)*

VTT-12-1981 *(code symbol for vocabulary)*

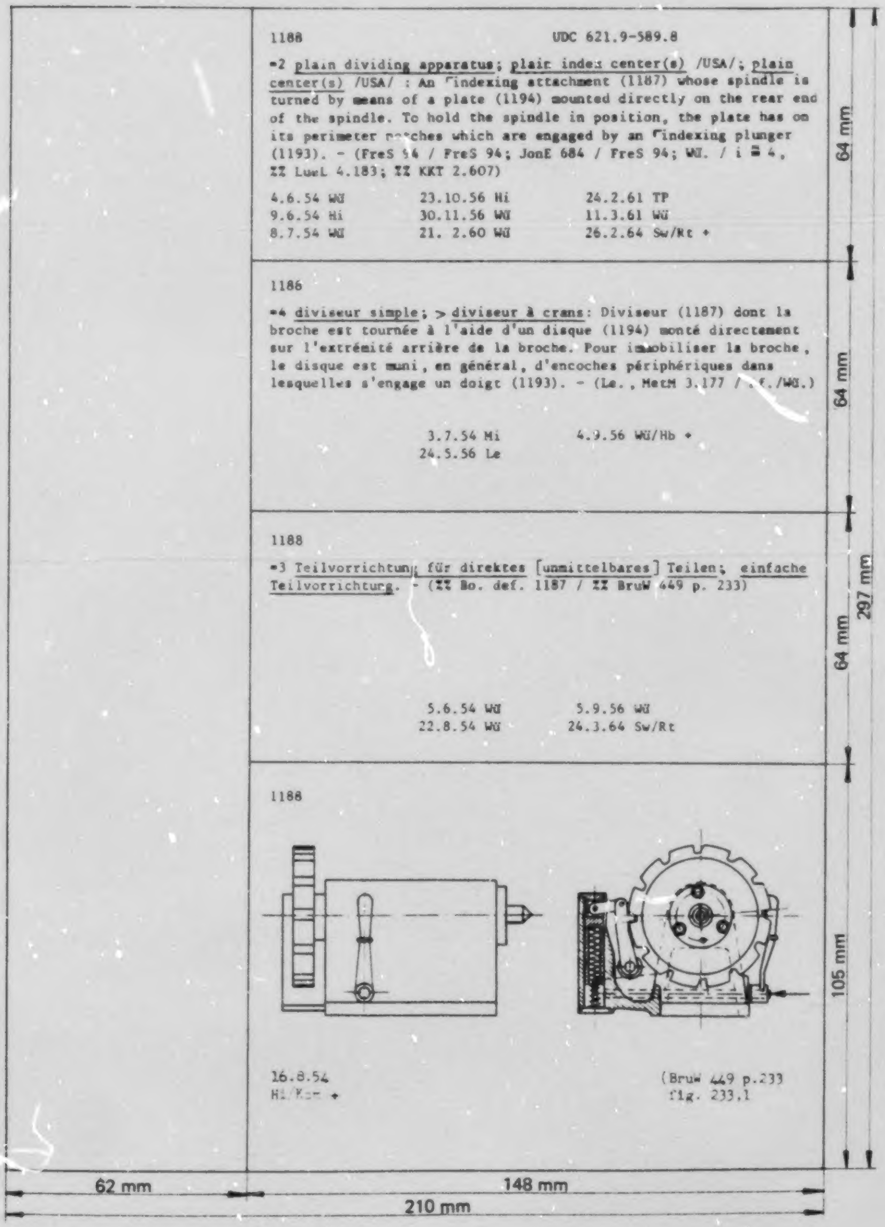
Bibliographic reference slip (article)

SAMPLE PAGES OF DISCUSSION MANUSCRIPTS

Example 1:

SAMPLE PAGE OF A DISCUSSION MANUSCRIPT

(reduced scale)



1188 UDC 621.9-589.8

•2 plain dividing apparatus; plain index center(s) /USA/; plain center(s) /USA/ : An ⌜indexing attachment (1187) whose spindle is turned by means of a plate (1194) mounted directly on the rear end of the spindle. To hold the spindle in position, the plate has on its perimeter notches which are engaged by an ⌜indexing plunger (1193). – (FreS 94 / FreS 94; JonE 684 / FreS 94; WÜ. / i ≡ 4, ZZ LueL 4.183; ZZ KKT 2.607)

4.6.54 WÜ 23.10.56 Hi 24.2.61 TP
9.6.54 Hi 30.11.56 WÜ 11.3.61 WÜ
8.7.54 WÜ 21. 2.60 WÜ 26.2.64 Sw/Rt +

1186

•4 diviseur simple; > diviseur à crans: Diviseur (1187) dont la broche est tournée à l'aide d'un disque (1194) monté directement sur l'extrémité arrière de la broche. Pour immobiliser la broche, le disque est muni, en général, d'encoches périphériques dans lesquelles s'engage un doigt (1193). – (Le., MetM 3.177 / .f./WÜ.)

3.7.54 Mi 4.9.56 WÜ/Hb +
24.5.56 Le

1188

•3 Teilvorrichtung für direktes [unmittelbares] Teilen; einfache Teilvorrichtung. – (ZZ Bo. def. 1187 / ZZ BruW 449 p. 233)

5.6.54 WÜ 5.9.56 WÜ
22.8.54 WÜ 24.3.64 Sw/Rt

1188

16.8.54
Hi/Km +

(BruW 449 p.233
fig. 233.1

Example 2:

399 DK 614.846.6 : 654.912.8

D Rundum-Kennleuchte:
Auf Feuerwehr-, Sanitäts- oder anderen Einsatzfahrzeugen (393) montierte optische Warnvorrichtung (402), bei der ein umlaufendes oder blinkendes Lichtbündel (Kennlicht) erzeugt wird. Das Licht ist durch ein optisches Filter blau gefärbt. — DIN 14 620 Bl.1 (7.60)

○ 5.8.64 Kb
7.8.64 Ko ○

399

E flashing alarm lamp:
Blue identification lamp (402) with permamently revolving reflectiondisk fitted to fire service appliances, ambulances or other operational vehicles (393). — ITV for Prevention of Fire

○ 6.8.64 Hi
10.8.64 Kb ○

399

F phare d'identification:
Lampe d'identification (402) jauneorange (bleue en Allemagne et en Autriche) réfléchie par un disque tournant d'une façon continue et montée sur des véhicules d'incendie ou de secours (393). — VTI de Prévention du Feu

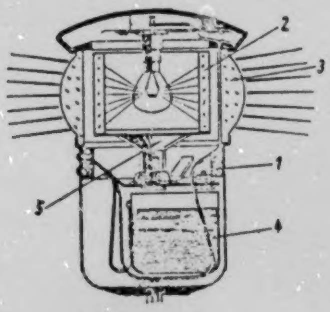
○ 7.8.64 Ko
10.8.64 Kb ○

399

Nl	zwaailicht
No	roterende blinklys
Sv	lykta med blixtrande sken
J	faro rotativo per ricognizione
S	faro de identificacion rotativo
R	поворотная фара
Cs	otočné výstražné světlo
Pl	obrotowa lampa sygnałowa
Tr	...

○ 7.8.64 Kb
11.8.64 Rf ○

399



7.8.64 Kb
13.8.64 Hi ○

○ 26.8.64 Ko

PART 6

TERMINOLOGY DOCUMENTATION

6 TERMINOLOGY DOCUMENTATION

6.0 GENERAL

Documentation is a science and a practice. It is transdisciplinary, i.e. it is applicable for any field of knowledge and any human activity. There are manual and automated methods used in documentation. The collected data can be recorded on data carrier such as paper, film, microfiche, magnetic tape or disc etc. The following three types of documentation exist in terminology documentation:

- literature documentation
- terminological data documentation
- factographic data documentation.

The aim of terminology documentation is:

(1) collecting, recording, analyzing, ordering and storing of
    - terminological documents
    - terminological data (on individual concepts)
    - factographic data (terminological organisations, commissions, experts, data banks etc.),

(2) providing pertinent documents and data, world wide,

(3) disseminating terminological information via information systems or in form of secondary literature (bibliographies, directories etc.) and tertiary literature (bibliographies of bibliographies).

This part intends to give a very concise and cursory description of the documentation work for terminology purposes. In general it does not differ essentially from the documentation work to be done in other disciplines. There is a large number of text books, manuals, standards etc. as well as of training facilities which help acquire the necessary knowledge and skills for performing the professional work as documentalist. In this part the specific terminology documentation work is treated.

6.1 LITERATURE DOCUMENTATION

Literature documentation deals with documents, i.e. with the collection of documents, with the recording of their bibliographic descriptions or references, with the assigning of key words, classification or subject codes (indexing), with the preparation of abstracts, with the developing of catalogues, computerized data bases or bibliographies, and with the dissemination of information on the collected documents or their bibliographic data.

6.11 Collection and recording

For terminology work, documents such as relevant books, brochures, periodicals, papers, standards, guidelines, reports, terminology standards, specialized vocabularies, documentation thesauri and indexing languages as well as bibliographies of these documents are to be collected and their bibliographic data are to be recorded on cards or in machine readable form. Formal data such as author, title, edition etc. are used in order to identify the document to be recorded. For filing and searching of these documents indexing languages describing the contents of the documents with the aid of key words or classification symbols are used.
The data used to describe formal facts of a document are called bibliographic data. A set of bibliographic data concerning a document is called bibliographic description or reference. A reference comprises only basic data necessary for unambiguous identification of the work. Data elements in languages using ideogrammes or other letters than the Roman alphabet have to be romanized or transliterated preferably following ISO standards (see Annex 8).

6.12 Bibliographic data

The information on a document to be described is broken down into data elements.

A bibliographic data element is the smallest piece of information, which is used to describe the formal facts of a document.

There is a large number of bibliographic data elements which can be used for the formal description of a document. Librarians produce mostly catalogue entries, subject specialists prepare mostly references, see 6.13.

A successful exchange of bibliographic data for national and international information systems and networks requires the use of unified data elements. Therefore the relevant national and international standards (ISO) and the UNISIST reference manual should be applied whenever possible (see Annex 8).

For the international bibliographies of TermNet which are in preparation under the direction of Infoterm, bibliographic data elements are used, which are indicated in the TermNet Manual /1/. The data elements are in line with ISO 690 and the UNISIST-reference manual (see Annex 8).

In the Annexes 1 - 4 the bibliographic data elements of ten International Bibliographies (see 6.15), which are in preparation within TermNet are given.

6.13 Bibliographic descriptions or references

The bibliographic descriptions or references of documents are basic units of bibliographies, alphabetic or systematic catalogues, computerized data bases, etc.

A bibliographic description is a set of bibliographic data elements necessary for the formal description of a document or parts thereof in standardized form and sequence.
The individual data elements of the bibliographic description are separated by definite orthographic signs (full stop, vertikal stroke, colon, etc.).

A bibliographic reference is a set of bibliographic data sufficiently precise and detailed for the identification of a document or parts thereof in standardized form and sequence.

Bibliographic references differ according to the type of literature concerned. In the following examples of references used by Infoterm for the international bibliographies are given:

Example 1: Books (BT 1 = International Bibliography of Terminological Literature)

(1) Single author

SC 40 (subject code)

DREZEN, E.K. Standardizacija naučno-tehničeskih ponjatij, oboznačenij i terminov /Standardization of scientific and technical concepts, symbols and terms/. Moskva/Leningrad: Gosudarstvennoe izdatel'stvo Standartizacija i Racionalizacija, 1934, 108 p., 140x200 mm, ONv.

(2) 2 or 3 authors

SC 12 (subject code)

DROZD, L.; SEIBICKE, W. Deutsche Fach- und Wissenschaftssprache. Bestandsaufnahme - Theorie - Geschichte /German special and scientific language. Inventory - Theory - History/. Wiesbaden: Oscar Brandstetter, 1973, 207 p., 125x195 mm, ONv.

(3) More than 3 authors

MAIER, B. et al. ......

(4) Anonymous (no author given)

AAA.............

Example 2: Article in a book (BT 1)

SC 03 (subject code)

WÜSTER, E. Österreichische Beiträge zur Überwindung der Klassifikationsprobleme. /Austrian contributions to overcome problems of classification/. In: Recla, J. Sportdokumentation im Durchbruch. Bad Honef: Osang, 1971, p. 78-79, A5, ONv.

Example 3: Article in a periodical (BT 1)

SC 10 (Subject code)

KÜBLER, G. Grundlagen für die Terminologie und Lexikographie /Fundamentals of terminology and lexicography/. DIN-Mitteilungen 47 (1968), no. 1, p. 27-32, ONv.

Example 4: Paper of proceedings (BT 1)

SC 20

SCHULZ, J. A terminology data bank for translators - Methods of interrogation in the TEAM system. In: CEC. Third European congress on information systems and networks. Overcoming the language barrier. Luxembourg, 3 - 6 May 1977. Vol. 1. München: Verlag Dokumentation, 1977, p. 153-189, 238x158 mm, ONv.

Example 5: Standard (BT 2 = International Bibliography of Standardized Vocabularies)

5905 (serial number) UDC 621.914

$^{\circ}\underline{D}$

DIN. Fertigungsverfahren. Spanen. Einordnungs-Unterteilung. Begriffe. [Manufacturing processes. Chip removal. Milling. Classification. Subdivision. Terms and definitions]. Berlin: DIN, 8 p., A4. (DIN 8589, Teil 3, aug. 1982). ONv.

Example 6: Monolingual vocabulary (BT 4 = International Bibliography of Monolingual Specialized Vocabularies)

UDC 24

$\underset{\cdot}{\underline{F}}$

GUILLIEN, R.; VINCENT, J. Lexique de termes juridiques [Glossary of legal terms]. 5th ed. Paris: Dalloz, 1981, 449 p., 110x180 mm, ONv.

Example 7: Multilingual vocabulary (BT 3 = International Bibliography of Multilingual Specialized Vocabularies)

UDC 625.1 : 656.2

$'D_F$ $'E_F$ Nl_F $'I_F$ $'S_F$

UNION INTERNATIONALE DES CHEMINS DE FER. Lexique général des termes ferroviaires [General glossary of railway terms]. 3rd ed. Paris: UIC, 1975, 1602 p., A5, ONv.

Example 8: Theses (BT 12 = International Bibliography of Terminological Theses and Dissertations)

ROHSAL, C. Gegenüberstellung der französischen und deutschen Terminologie der Wahlen [Comparison of the French and German terminology of elections]. Saarbrücken: diploma thesis, 1978, 116 p., A4, ONv.

6.14 Documentation work

The documents collected are the basis for information activities and for the preparation of secondary literature (bibliographies) and tertiary literature (bibliograhies of bibliographies). According to its function a documentation unit may carry out one or more of the following activities:

(1) the recording of the bibliographic data of incoming documents
(2) the adaptation of bibliographic data acquired from other documentation services and their inclusion in its own file
(3) the maintenance of a catalogue in form of a card file or a computerized data file
(4) the indexing (description of the content of documents by key words, descriptors, or a classification code)
(5) the analysis of the content of documents
(6) the compilation of secondary and tertiary literature
(7) the establishment and further development of a library, archive or documentation centre.

Documentation units or centres can be:

- referral agencies or centres
- information analysis agencies or centres

Referral agencies or centres provide information on existing literature and refer to those documentation units where the documents can be inspected or copies of these documents obtained.
Information analysis agencies or centres perform operations such as abstracting, indexing, translating, reviewing, evaluating, preparing secondary and tertiary literature.

6.141 Recording

The bibliographic data are recorded either on a card (if possible format ISO A6 or A7) or on a work sheet from which it can be transmitted into machine readable form. A few samples of file cards containing recorded bibliographic data are given as Annex 5. An example of a worksheet in machine readable form for the International Bibliography of Standardized Vocabularies is given as Annex 6. Annex 15 is a sample page of this bibliography.

6.142 Cataloguing

The cards can be filed in alphabetical order (following the name of the authors) or in systematic order (following a subject classification). Catalogues are the basis for the retrieval of individual documents in a documentation unit, especially if the documents are stored in a non-systematic way. In general they serve as reference tools, i.e. they indicate the existence of a certain document as such and the location of this document. Conventional catalogues are card files. Modern catalogues are computerized. They are called data bases. The data bases are the cores in information systems and networks. These information systems and networks sometimes include data banks (storage of factographic data).

6.143 Analysis of documents

In order to provide users with information on the contents of a single document (or a number of related documents), these contents are analyzed and later condensed or summarized. The shortest description of the contents of a document is made by indexing terms.
The result of the analysis can be:

- a summary or abstract
- a synopsis
- a progress report or state-of-the-art report
- a description of the contents by key words, indexing terms or classification symbols (see 6.145).

6.144 Data handling and users' access to data

The main activity of a terminology documentation unit is the data handling, i.e. the acquisition, recording, processing and exchange of data as well as providing the user with an acess to internal and external data. In particular the following activities should be envisaged:

- the recording of bibliographic data of the specific field to be covered
- the harmonisation of the data received from outside with the own data
- the interchange of data in co-operation with partners of a particular network such as TermNet
- the provision of access to other data bases and information networks
- the processing of data for the production of secondary or tertiary literature with a consideration of the needs of various user groups.

6.145 Indexing languages (data describing the content)

For literature search a classification, a thesaurus, an indexing language, a controlled vocabulary etc. or free key words can be applied. The classification scheme determines the systematic storage of documents. Whenever possible, internationally accepted classifications, thesauri, indexing languages such as the Universal Decimal Classification (UDC) should be used. This facilitates the international co-operation and exchange. It goes without saying that the construction of a specific indexing language for a specific need would be the best solution.This requires a great effort. If this is not possible, one can also utilize sections of existing indexing languages and adapt them to one's own specific needs. The use of free key words could cause problems as soon as the documentation has reached a certain extent, which makes the use of a controlled vocabulary necessary. The indexing language, which suits the required purpose best, has to be determined by careful study and consultation of experts in this field. The possibility of international co-operation should always be taken into account, when taking a decision on indexing a language.

6.15 Secondary or tertiary literature

The documentation units or centres for terminology should have a common aim, i.e. to attain a bibliographic control of all terminological literature. This is an effort to record in a worldwide co-operative action the bibliographic data of the existing terminological literature in the world and to organize the access to these data /2/. For this purpose TermNet Programme 3 (see 1.133) has been created. A part of this programme is dedicated to the elaboration of international bibliographies. The aims and scopes of these bibliographies are described in Annex 16. The lists of bibliographic data elements used are given in the Annexes 1 - 4. These bibliographies are:

BT 1 International Bibliography of Terminological Literature (Annex 1)
BT 2 International Bibliography of Standardized Vocabularies (Annex 2)
BT 3 International Bibliography of Multilingual Specialized Vocabularies Annex 3)
BT 4 International Bibliography of Monolingual Specialized Vocabularies (Annex 3)

BT 6 International Bibliography of Standards and Non-standardized Guidelines for Terminology (Annex 1 and Part 1, Annex 2)
BT 7 International Bibliography of Periodicals Pertaining to Terminology
BT 8 International Bibliographies of Bibliographies and Catalogues Containing Terminological Literature (Annex 1)
BT 9 International Bibliography of Computer-Assisted Terminology (Annex 1)
BT 10 International Directory of Terminological Meetings
BT 11 International Bibliography of Reports and Proceedings of Terminological Meetings
BT 12 International Bibliography of Terminological Theses and Dissertations (Annex 4)
BT 13 International Bibliography of Collections of Acronyms, Initialisms and Abbreviations
BT 14 International Bibliography of Collections of Neologisms
BT 15 Who's Who in Terminology (Directory of Experts)

Annex 7 presents a list of bibliographic data elements for thesauri (proposal Infoterm).

6.16 Standards and guidelines

Standards and guidelines play an important role in documentation. For international but also national co-operation the unification of data elements, codes, procedures etc. in documentation is necessary. For this reason, International Standards (ISO) and Guidelines (UNISIST/Unesco) as well as national standards, which are mostly in line with the international ones, should be observed as closely as possible in order to provide international compatibility. A list of seclected ISO Standards and UNISIST Guidelines for documentation is given as Annex 8.

An overview of the existing standards and guidelines can be found in "UNISIST Guide to standards for information handling" [3], which was published in 1980 and is updated regularly by Unesco.

The Technical Committee ISO/TC 46 "Documentation", the secretariat of which is held by DIN Deutsches Institut für Normung e.V. in Berlin, is responsible for the elaboration of ISO Standards for documentation [4]. Many national standards organisations have national technical committees concerned with the elaboration of standards for documentation.

6.2 TERMINOGRAPHICAL DATA DOCUMENTATION

Terminography and terminographical data documentation are closely related fields. The methods of terminography are extensively described under 4. Details on terminographical data, data collection, vocabulary items,records and formats can be found there. Terminographical data are terminological data and their associated data (see 4.05).

The result of the terminographical work, be it in conventional form (card file, vocabulary etc.) or in machine readable form (terminological record on tape or disc), is a basis for terminographical data documentation. In this documentation terminographical data mostly of different origin are collected, processed and stored either in form of a conventional card file or of computerized terminological records (data bank) [5] with a view to provide a basis for the information of certain user groups. They form also a basis for the production of any listings or arrangement of terminological data as well as their combination with the aid of computers [6].

In future it is to be expected that the card file will be increasingly replaced by mini- and micro-computers which allow to store those terminographical data that are needed by individuals and institutions in their daily work. The big storage capacity and flexibility of programms will be quite advantageous for terminographical data documentation [7]. For all data banks, be they conventional or automated, the supply of reliable terminological data for the user is essential. Therefore terminologies should be prepared by terminology commissions of scientific, technical and professional organizations (TermNet Programme 2, see 1.132) and made available on a magnetic data carrier (tape, disc etc.). Mini- and micro-computers will enable users and user groups to store those data of big terminological data banks,which they need for their daily work. This new development will give rise to a market for specialized vocabularies in machine-readable form and to corresponding updating services. For this purpose international guidelines for recording of terminological data for machine processing are in in preparation /8/. These guidelines should make it possible, that terminographical data elaborated by subject specialists of various terminology bodies (commissions, committees, working groups) are recorded in such a way that they are compatible. Such a procedure belongs to terminographical data documentation. The specialists who work in terminology offices or terminological data banks are called "terminologists", though their work is more in the line of terminographers or terminological documentalists than that of terminologists in the strict sense. Most of their activities belong to terminography and/or terminographical data documentation. They hardly elaborate systematic terminologies by themselves.

In general the task of the terminologist of a terminological data bank is:

- data acquisition
- data analysis, harmonisation and evaluation in co-operation with the subject specialists
- data recording or reformating, data inputting and processing
- data maintenance
- production of data sets from the data stock of the bank for specific user needs
- data retrieval and dissemination
- to help the users with the solution of terminological problems
- to develop in co-operation with information specialists programmes, which facilitate the use of the bank or improve its utilization

6.21 Terminological data banks

A computerized terminological data bank is a collection of terminological data which were processed following a certain instruction (programme) and which are stored on a magnetic data carrier (tape, disc etc.). This form of storage allows a quick and efficient updating of the data. For the publication of vocabularies the data elements can be linked and arranged in any form by logic operations laid down in form of a computer programme. In such a way the data existing in the bank can be brought into any desired terminographical order and layout for the production of vocabularies, term lists, etc.

In the mid-fifties attempts were made to increase the efficiency of the translation process through the assistance of the computer with the final goal of an automation of this process. However, some time later, after some research and initial success, it has become evident that for the time being only computer assisted translation is feasible. This gave rise to the establishment of terminological data banks in the late sixties, which represent an important aid for the computer assisted translation [9].

These terminological data banks were primarily designed for speeding up translation. Data banks of different data structure were created in the sixties: the Bundessprachenamt [10] in the FRG started to record pairs of equivalents, i.e. the juxtaposition of two different languages mostly English and German. DICAUTOM [11], which later became EURODICAUTOM [12] [13] of the Commission of European Communities in Luxembourg, was based on the idea of recording above all phraseologic units in various languages. TEAM (Terminologie-Erfassungs- und Auswertungsmethode [Terminology recording and analysis method] [14] [15] of the Language Service of Siemens in Munich (FRG), is based on the conception of the General Theory of Terminology the founder of which is E. Wüster [16].

In 1968 TERMDOK was founded by Tekniska Nomenklaturcentralen in Stockholm (Sweden). In in the late sixties "Termium" was developed at the University of Montreal (Canada) [17]. Termium was later taken over by the General Direction of Terminology and Documentation (DGTD) of the Canadian Government . At present Termium III (the third generation) is in preparation [18].

In 1971 the Institut für Angewandte Sprachwissenschaft [Institute for Applied Linguistics] of the Technical University Dresden, GDR, in co-operation with the computer centre of the same university established the "Elektronisches Wörterbuch der Fachsprachen" (EWF) [Electronic Vocabulary of Specialized Languages] [19] [20].

In 1971 the "Banque de Terminologie de Québec" (BTQ) was established by the Office de la Langue Francaise (OLF) [21].

In the mid-seventies also data banks for standardized terminologies were set up: in 1974 the Spravočnyj bank terminov avtomatizirovannoj sistemy informacionno-terminologičeskogo obsluživanja (SBT ASITO) [Terminological data bank - Automated system of the terminology information service] by GOSSTANDART, Moscow, USSR [22]; in 1975 Normaterm by the Association française de normalisation (AFNOR), Paris, France [23]; in 1976 Term by DIN Deutsches Institut für Normung, Berlin, FRG. (The data of Term are processed by the Language Service of Siemens, Munich, FRG [24]). At the end of the seventies the Norwegian Standards body has set up a terminological data bank. Other national standards organisations will follow in the computerization of their terminology files.

The development of terminological data banks in all parts of the world made a discussion of an international co-operation necessary. At the First International Symposium of Infoterm on the international co-operation in terminology in Vienna in 1975 [25] a part of the discussion was devoted to terminological data banks. It was, however, only at the First International Conference on terminological data banks held by Infoterm in 1979 [26], that the possibilities of an international co-operation were discussed in more detail. This conference was also intended to help organizations which planned terminological data banks or had such banks in development. Demonstrations of terminological data banks were offered: at the international congress "Terminologies 76" which was organized by AFTERM [27]; at the international symposium "Theoretical and methodological problems of terminology" which was organized by GOSSTANDART, Academy of Sciences of USSR, Infoterm and AILA in Moscow in 1979 [28].

In 1982 a congress on term banks for tomorrow's world was held in London [29]. A meeting of terminological data bank managers and operators was organized by the terminology bank of the Canadian Government, which was held in Ottawa in spring of 1983.

As a follow-up of the First International Conference on terminological data banks mentioned above, expert meetings were convened by Infoterm in 1980 and 1983 with the aim to prepare guidelines for the recording of terminological data for machine processing [30] [31]. Recently some feasibility studies for terminological data banks were carried out by various organizations; e.g. by UMIST on behalf of the British Library [32]. Some principles for the establishment of terminological data banks have been drafted earlier for the terminological data bank of Canada [33].

6.211 Types of terminological data banks

In general the terminological data banks can be classified according to the data stored [34] in:

- dictionary type banks
- vocabulary type banks

Some existing banks are of a mixed nature, i.e. they include dictionary and vocabulary type records.

6.211.1 Dictionary type banks

Dictionary type banks are at present primarily translation oriented. The terminological record is similar to that of a dictionary, i.e. the ordering element is a term or a phraseological unit with the corresponding foreign equivalents in other languages. The records are term oriented. Sometimes the meanings of the term are given by explanations with an indication of the subject concerned. The individual record can be connected to a group of other records by the indication of a subject field code. The dictionary type bank consists of independent records. Connections of data elements of different records are indicated through references.

6.211.2 Vocabulary type banks

The vocabulary type banks consist of records which are concept oriented. The terminological data of a concept (see 4.051) with its interrelationships to the neighbouring concepts of the same subject field are given in the record. These data include definition or at least an explanation of the concept. The record can be monolingual or multilingual. At present various standards organizations such as AFNOR (France), VNIIKI/GOSSTANDART (USSR), DIN/Siemens (FRG) and others have such banks for Terminology standards in operation.

There is an urgent need for data banks usable for scientific purposes, which would complement the existing banks. They are an invaluable source for subject specialists, scholars, teachers, editors as well as for scientific, technical and professional organizations.

The data of these banks are mostly the result of the work of terminology commissions of scientific organizations or of standards organizations.

They are therefore reliable and authoritative.

These banks are the future tools for the unification in terminology. They are expected to play an important role for the transfer of science, technology and professional skills.

6.212 The function of terminological data banks

The terminological data banks have the function to store terminological data (see 4.051) in one or more languages on one or more subject fields in order to inform on these data or to process them for specific purposes such as the production of vocabularies, term listings etc. They work more or less on the same line as factographic data banks. Any network of data banks or data bases should comprise terminological data banks in order to allow the general users, who may be laymen, educated laymen or specialists, to solve terminological problems, which arise in the search for information. The terminological data banks can be monolingual or multilingual. As a rule, terminological data banks should, however, inform specific user groups such as subject specialists, translators, scholars, editors, information specialists on particular issues such as the meaning of terms, equivalent terms in other languages, terms recommended or standardized by certain competent organizations, the preferred or admitted terms, the definitions or explanations of individual concepts, synonymous terms used in a linguistic area, the relationships of concepts with other concepts and similar data on concepts.

For computerized terminography, the terminological data banks are the basis for various operations, which were carried out before manually. Different kinds of terminographic investigations and the presentation of vocabularies in the most appropriate form for the user are now made possible within a very short period of time. Such a data bank is also used for the production of specialized vocabularies by photo-typesetting. Since computerized terminography is still in development new terminological data banks for different requirements and purposes will arise. Terminological data banks can be combined with word processing equipment when texts should have a unified terminology.

New types for specific applications such as training, the formation of new terminologies (data banks storing term elements, which are the basis for new terms) etc. will arise. Data banks for specific languages such as Japanese or Chinese /35/ /36/ or Arabic /37/ are already in development. From the above mentioned facts follows that the data structure of a prospective terminological data banks will depend to a large extent on the prospective user.

6.213 Reliability of data, data supply and maintenance

Reliability of data, data supply and maintenance are the most important issues with respect to terminological data banks.

6.213.1 Reliability

The quality of a terminological data bank depends on the reliability of its data /38/. Data banks have a strong impact on the unification of terminological usage. Incorrect or inappropriate terms which are stored in a bank are likely to be spread quickly and consequently cause difficulties in understanding and communication. They can also become the cause of language splitting. But in general, unreliable data banks will be avoided by the users as it is the case with some of the translation dictionaries. It is the current practice of most terminological data banks of the dictionary type to mark or indicate the reliability of an entry by a reliability code. This does not suffice for scientific purposes. In data banks belonging to the vocabulary type, it is inevitable to indicate the sources of the various data elements, e.g. the professional organizations which coined a particular term, or recommends a certain definition etc., see 4.112.1.

6.213.2 Supply

Another important issue of data banks is the data supply and the data selection for input. The flow of information has to be regulated prior to the establishment of a data bank. Data banks belonging to the dictionary type are usually run by translators. Their linguistic expertise is very valuable for such banks, although they are usually no experts in the subjects concerned. Therefore they should co-operate with subject specialists when they prepare data for the input. Since the professional terminologists of the various language services do not create terminological data, but only evaluate and utilize it in the way of terminology documentation, it is their task to verify certain data in collaboration with subject specialists. It is very advantageous to have a terminological data bank embedded in an environ-ment of subject specialists as it is the case at the Technical University of Dresden. Generally speaking most data banks have problems of some sort with the data acquisition. TermNet Programme 2 (see 1.132), which aims at the co-operation of subject organizations in regard to the elaboration of terminologies and their recording for machine processing, was created also with a view to supply terminological data banks with reliable data.

6.213.3 Maintenance

The third important item is the maintenance of a data bank. Many new terminologies are created nowadays and there is a constant change within the established ones. This is due to rapid development of science, technology, economy and other sections of the professional and vocational life. This causes great difficulties for terminological data banks. The producers of dictionaries were blamed that they do not keep abreast of the current developments. The professional terminologists of the big terminological data banks which belong to the dictionary type and cover many or all subject fields are not in a position to maintain an overview of the development and changes within the terminologies of certain subjects.

Besides the defining vocabularies, translation dictionaries of a general nature came into existence for particular subject fields. These were frequently very unprecise, unreliable and far behind the development. Therefore defining vocabularies were elaborated by subject specialists for their needs in various disciplines which contained only the terminology of a specific subject field. This process will also take place in the development of data banks belonging to the dictionary type.

The data banks belonging to the vocabulary type can put into practice all modern findings of terminography. The terminology of a subject field is elaborated by terminology commissions and arranged or classified according to the pertinent systems of concepts. In this way completeness can be achieved. The terminologies of the specific fields can be incorporated in data banks as specific files. The data banks belonging to the dictionary type store their entries (i.e. the terms) as isolated units which are mostly grouped in broad subject groups. Unfortunatealy the subject groups are different in each data bank. This is one of the reasons why data interchange between banks is complicated. Data banks of the dictionary type do not enable the user to gain an overview of the systems of concepts.

6.214 Future developments

The reasons mentioned above point towards the fact that smaller decentralized units of terminological data banks are preferable because they are more manageable and easier to control. This is also valid with respect to the efficiency of smaller units of hardware. This trend of preferring smaller units should not be interpreted, however, in the way that big data banks are superfluous nowadays. The big banks of language services have to cater for the requirements of many user groups. Out of their vast data store they can output upon request certain subject vocabularies which can be mounted on microcomputers by the various users.

Terminological data banks will increasingly be combined with word processing equipment in order to ensure the use of a uniform terminology within the texts issued by a certain organization. The progress achieved in terminology science and in particular in terminography as well as in computer science will necessitate the creation of model data banks which can put the new developments straight into practice and thus test them and enable to acquire the necessary expertise. There is a special need for data banks dedicated to scientific purposes such as the automatic generation of systems of concepts according to various types of characteristics. Software necessary for the presentation of systems of concepts has already been developed some time ago, e.g. GENTHES [39].

There should be models which assist subject specialists in the formation of terms in the various languages with a key to terminology which consists of stems and affixes. A model for the German language is in elaboration at the Technical University of Dresden [40]. A further model for a key to international terminology is also required [41].

Although changes of the data structure are very difficult to execute within big data banks, there is nevertheless a certain development noticable at these terminological data banks. The co-operation of university departments and terminological data banks is especially important for the development of model data banks [42].

Though many organizations in the world plan to establish terminological data banks, the realization requires careful thought, consideration of the present and the future users as well as the continued progress of computer technology involving adaptations and modification of the plans. The development of mini- and micro-computers in the next years with very large storage capacities and with a high performance software compels to rethink the strategies of the establishment of big terminological data banks. The trend is going in the direction of versatile mini- and micro-computers for defined subject fields, the operation of which can more easily be controlled as regards the cost and maintenance. Big banks will still have a function for specific purposes. There is however a trend towards small specialized banks rather than towards big banks offering not only information on terminology but at the same time on linguistic data in general, as was proposed in one of the feasibility studies on linguistic data banks.

In the near future it is to be expected that models for different types of terminological data banks will be developed at universities or organizations performing research in this field. These models will be of great help to organizations planning to establish such data banks, since they will allow them to tailor their banks in accordance with their real needs.

6.215 Terminological data banks in operation and in development

The following lists of terminological data banks are given as Annexes:

- Annex 9 - list of the most important terminological data banks of the world, which are in operation;
- Annex 10 - list of terminological data banks, which are in development

6.22 Exchange format

Concerning the exchange of terminological data, the following ISO Standard is in preparation:

ISO Magnetic tape exchange format for terminological/ lexicographical records (MATTER), 35 p., A4 (ISO/DIS 6156 apr. 1983).

6.3 FACTOGRAPHIC DATA DOCUMENTATION

For a closer co-operation in terminology it is necessary to know: who is doing what and where in terminology. This information is composed of certain specific data which we call factographic data. Such data describe organisations, data banks, experts working on terminological issues, terminology projects in progress etc. They are collected at many institutions working in the terminological field. Infoterm has published a "World Guide to Terminological Activities" as Infoterm Series 4 in 1977 /43/.

Infoterm co-ordinates the efforts of recording the relevant factographic data and of keeping these data up to date. In order to serve this purpose the "World Guide" mentioned above has been rendered in machine-readable form and is kept up to date.

This project has been initiated in order to facilitate the decentralized recording of all relevent data as well as the central collection and maintenance of these data.

6.31 Collecting and recording

Factographic data on organisations, data banks, commissions and experts working in the terminological field, as well as on terminological projects are collected and recorded by competent organizations.
A set of factographic data prepared for dissemination is called a directory entry.

6.32 Factographic data

The information of the entities mentioned above is broken down into factographic data elements.

Infoterm has prepared data formats, which can be used as models for the recording of factographic data. They can be adapted to the respective need.

6.321 Worksheets for factographic data

The following worksheets are given as Annexes:

- Annex 11 - worksheet 1 - Organisations
- Annex 12 - worksheet 2 - Commissions/Committees
- Annex 13 - worksheet 3 - Terminological data banks
- Annex 14 - worksheet 4 - Projects

6.33 Directory entries

A directory entry is any set of factographic data describing an organization, commission or committee, which is engaged in terminology work or a terminological data bank, or terminological projects. In the following an example of each of the four categories is given below.

(1) Organisations

Example:

Council for International Organizations of Medical Sciences/Conseil des Organisations internationales des sciences médicales (CIOMS/COISM)
Parent organization: World Health Organization and Unesco
c/o WHO, Avenue Appia — Phone: 022/ 91 34 06
Genève, CH-1211 — Telex: 27 821
Switzerland
Head: Mr. Zbigniew Dankowski, M.D., Executive Secretary
Expert(s): 4
Staff categories:
    2 terminologist(s) (theory); 1 translator(s)
Founded: 1949
Documentation:
    bibliographic data
    factographic data
Subject(s): diseases (medicine)
UDC 61
Language(s): En; Fr; Es; De; (and others)
Vocabularies:
Subject(s): medicine
UDC 61
Language(s): En; Fr; De; Es

Publications: International Nomenciature of Diseases, Diseases of the Lower Respiratory Tract. Genève CIOMS 1979, 128 p., A5

Others in preparation, i.e. infectious diseases

(2) Commissions/Committees

Example:

International Commission for Palynology. Working Group A 4 (Actuopalynology) on "Terminology of Pollen Grains and Spores"

Parent organization: International Commission for Palynology
435, Deike Building, Pennsylvania State University
Pennsylvania, PA, 16802
USA

Contact: Dr. Stephen Blackmore, Department of Botany, British Museum (Natural History), Cromwell Road, London SW 7 5BD, England

Chairperson: Dr. Stephen Blackmore

Established: 1973

Vocabularies:
Subject(s): pollen grains and spores
UDC 581.46
Language(s): En; Fr

Vocabulary standards:
Subject(s): pollen grains and spores
UDC 581.46
Language(s): En; Fr

Publications: Nilsson, S.; Muller, J. Recommended Palynological Terms and Definitions, 1978.

(3) Terminological data banks

Example:

Office de la langue française (OLF). - Direction de la banque de terminologie du Québec (BTQ)

Parent organization: Conseil de la langue française - Commission de surveillance de la langue française
700 boulevard Saint-Cyrille est, Phone: (418) 643 1802
Québec, Québec, GIR 567 Telex: AFINTER QBC 051 3523 OLF
Canada

Staff: 71

Head: M. Jean-Marie Fortin, Directeur de la Banque de terminologie du Québec

Expert(s): M. Buddhi Klok, Service de la documentation;
Mme. Francine Thomas, Groupe d'étude et de coordination
Staff categories:

31 terminologist(s) (theory); 5 documentalist(s)/librarian(s);
23 information specialist(s); 12 other professional(s)

Founded: 1961 (OLF), 1973 (BTQ)

Purpose of data bank/user: Diffuse terminology in respect of Bill 101 of the province of Québec / Subject specialists, translators, teachers, firms

Operation:

computerized

Name: Banque de terminologie du Québec
Size: /- 830 000 documents (Terminologie); / - 11 000 doc. (Sources); / - 29 000 doc. (Inventaire)
Language(s): In relation with STAIRS capabilities
Classification: Thesaurus; UDC; data base; dictionary

Subject(s): all fields
UDC 0/9
Language(s): Fr; En

Terminological data:

definitions; explanations; classified layout; context; equivalents; other data elements

(4) Projects

Example:

Responsible: CIOMS/WHO Technical Steering Committee
Title: "International Nomenclature of Diseases"
Project type: institutional; in progress
Principal investigator: Dr. Zbigniew Bankowski, CIOMS; Dr. K. Kupka, WHO
Collaborators: 7
Scope and/or subject matter: Objective of the IND is to provide, for every morbid entity, a single recommended name
Method of work: Consultation of existing recommendations; draft is distributed to a large number of individual experts and professsional associations
Source material: Existing recommendations
Publications: Nomenclature of infectious diseases and neurological diseases (forthcoming)

In addition, data pertaining to terminology experts, meetings, associations, etc. can also be published in form of directories.

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Annex 1

LIST OF BIBLIOGRAPHICAL DATA ELEMENTS FOR THE INTERNATIONAL BIBLIOGRAPHIES
(BT 1, BT 6, BT 8, BT 9, BT 11, BT 13, see 6.15)

Mandatory elements are underlined

Name of data element	Explanation and example
Record identifier	A unique identification of the record to be used for reference. Example: 00364
Recorder	Letter-code of the person or acronym of the organization responsible for recording Example: mn or Infoterm
Recording date	Example: 1979-02-15
Individual author(s) Individual editor(s)	Full surname(s) followed by the initial(s) of first name(s); two or three authors shall be separated by a semicolon. If there are more than three authors, only the first shall be given followed by the expression "/et al./ (et alii). Print in capitals Example: BRINKMANN, K.-H.; SCHMIDT, R.; STOJAN, F. If no author is given in the document (anonymous work) use AAA. In case of editor(s) add: (ed.) or (eds.) Example: DAHLBERG, I. (ed.). Classification ...
Corporate author(s) Corporate editor(s)	Institution, organization, group of experts, etc. having prepared the document. If an acronym or abbreviation is used, it may be given in brackets. Example: OFFICE DE LA LANGUE FRANÇAISE (OLF).
Title	Full title(s) in original language(s) Example: Die internationale terminologische Grundsatzarbeit
Document is a translation	Indicate /tr./ (for translation): use symbols for ISO 639 to give original language (if known) Example: /tr. R/ (translation from Russian)
Translator(s)	Full surname(s) followed by initial(s) of first name(s) of translator(s) Example: /tr. R by SMITH, B./

Name of data element	Explanation and example
Translated title	Full title(s) translated into E in square brackets or title in original language if document is a translation Example: The international work on terminological principles
Title of proceedings or abstracts	Example: Information interaction. Proceedings of the 45th ASIS Annual Meeting, 17 - 21 October 1982, Columbus, Ohio. (Title always preceded by In:)
Title of periodical	Example: Multilingua
Title of collection of series	In parenthesis Example: (Infoterm Series 3)
Name, place and date of congress	In Original language Example: Fachseminar Terminologie und Lexikographie Frankfurt, 1976 09 30 - 1976 10 01
Translation of name and place of congress	Translation into E in square brackets Example: [Technical seminar Terminolgy and Lexicography" - Frankfurt.]
Edition number	Example: 2nd. ed.
Place(s) of publication	In original language Example: Moskva/Wien/København
Publisher	For books only (omit Verlag, publisher, etc.) Example: G. Narr
Year of publication	Example: 1978 (For serials: year of publication in brackets. Example: (1981))
Number of volume of a periodical	Example: 6
Number of issue	Example: no. 6/7
Number of chapter	In a book Example: ch. 3
Number of pages	Number of pages of the whole book Example: 254 p. part 1: 283 p.; part 2: 17 p. (= number of pages of a book with independent parts)

Name of data element	Explanation and example
Pages of the article	Example: p. 164-182
Number of volumes	Example: 2 vols. (of a book)
Title of volume	Title of the volume containing the article or being subject of the record in original language Example: Prinzipien der Klassifikation
Location	Place where the document is available or where the recorder has seen the document Example: ONv (available at Österreichisches Normungsinstitut)
Nature of article	In brackets: abstract, report, manuscript, pre-prints
Subject code	Classification proper Examples: UDC 621; SC 42
Format (size) ISO	A4, A5, etc. or width by height in mm Example: 152x230 mm
Data carrier	To be omitted in case of printed media Example: transparencies, microfiche, magnetic tape
Descriptor(s)	Terms used for indexing and retrieval Example: terminology, classification, data processing
Existing translation(s)	Title(s), language(s), editor(s), location(s)
Language	Use language symbols according to ISO 639 Example: de
Document identifier or number	If given on the document; in parenthesis Example: (ÖNORM A 2657)
Illustrations	Indicate "i" for a non determined number of illustrations and "fig." for a determined number of illustrations Example: 14 fig.

Name of data element	Explanation and example
ISSN-number	Example: ISSN 0251-5253
ISBN-number	Example: ISBN 0-85365-691-6

Annex 2

LIST OF BIBLIOGRAPHICAL DATA ELEMENTS FOR THE INTERNATIONAL BIBLIOGRAPHY OF STANDARDIZED VOCABULARIES (BT 2)

Mandatory elements are underlined

Name of data element	Explanation and example
Record identifier	A unique identification of the record to be used for reference. It consists of 5 characters indicating the serial number Example: 00364
Recorder	Letter-code of the person or acronym of organization responsible for recording Example: mn or Infoterm
Recording data	Example: 1979-02-15
ISBN-number	If given
ISSN-number	If given
Document identifier	Standards symbol, identification number of standard and date as indicated on the standard identifier Example: ISO 4046-1978
Document date	Date of issue: month, year Example: nov. 1978
Issuing body	Body responsible for issuing the document (acronym or abbreviation) Example: ISO
Edition identifier	Number of edition or revision Example: 1st ed
Full name of issuing body	Example: International Organization for Standardization
Individual author(s)	Where applicable: full surname(s) and initial(s) of first name(s) in capital letters

Name of data element	Explanation and example
Date of promulgation or implementation	Exact date (year, month, day) indicating the beginning of validity of the document Example: 1979 07 01
Withdrawal date	Example: 1978 02 15
Technical (corporate) author	Name of technical expert group having elaborated the document Example: Technical Committee ISO/TC 6 "Paper board and pulps"
Date of expiration of validity	Exact date (year, month, day) indicating the end of validity of the document Example: 1984 06 30
Language(s)	Official language(s) of the original document; use language code given in ISO 639 Example: en, fr
Title	Full title(s) in original language Example: Paper, board, pulp and related terms-Vocabulary/Papier, carton,pates et termes connexes-Vocabulaire
Translated title	Full title translated into E May be omitted only if original title is in E
Location	Place where the document is available or where the recorder has seen the document Example: ONv
Document is a translation	Write tr (for translation) and indicate from which to which language Example: tr en→de
Author of translation	Acronym and full name of translating body Example: ON (Österreichisches Normungsinstitut)
Translations	Known translation(s) of the document and corresponding supplier(s)
Price/price group	Example: sfr. 15,-
Available media	Example: written document; tape; microfiche
Nature of document	Standard, standard-like publication, technical report; use S, SL, TR, respectively

Name of data element	Explanation and example
Partly terminological	If only parts of the document contain terms and definitions: indicate *after the title Example: Electrical indicating instruments - relays*
Terminological part	Indication of the pages containing terminology Example: P. 1-10: "Part 1: Definitions"
Publisher	Publishing house or organization responsible for publication Example: ISO
Place of publication	Place where the document is published Example: Genève
Number of terms or concepts	Estimated (~), if not given Example: 401 c. ~ 300 t. (estimated)
Illustrations	Indicate "i" for a non-determined number of illustrations and "fig." for a determined number of illustrations Example: 14 fig.
Symbols	Indicate "s" if document contains signs, letter symbols, etc.
Definitions	Indicate "def." if the concepts in the document are defined
Format (size)	A4, A5, etc. or width by height in mm Example: 210x270 mm
UDC notation	Example: UDC 676
Replacements or cancellations	Documents becoming obsolete by publication of document recorded Example: Replaces and cancels ISO/R 66, 135, 231, 272, 1295, 1912
Relationship with other documents	Identifier(s) of other document(s) to be consulted for the understanding of recorded document Example: ISO 1951-1974

Annex 3

LIST OF BIBLIOGRAPHICAL DATA ELEMENTS FOR THE INTERNATIONAL BIBLIOGRAPHIES OF SPECIALIZED MULTILINGUAL/MONOLINGUAL VOCABULARIES (BT3/4)

Mandatory elements are underlined

Name of data element	Explanation and example
Record identifier	A unique identification of the record to be used for reference. It consists of 5 characters indicating the serial number Example: 00364
Recorder	Letter-code of the person or acronym of organization responsible for recording Example: mn or Infoterm
Recording date	Example: 1979-02-15
ISBN-number	If given Example: ISBN 3-87097-075-8
ISSN-number	If given
Document date	Date of issue: month, year Example: 1977
Edition identifier	Number of edition or revision Example: 1 ed
Individual author(s) Individual editor(s)	Full surname(s) followed by the initial(s) of first name(s) in capital letters Example: SCHULZ, J.
Corporate author(s) Corporate editor(s)	Institution, organization, group of experts, etc. having elaborated the document Example: OLF (Office de la langue française)
Language(s)	Official language(s) of the original document Use language code given in ISO 639 Example: de, en, ru
Lexicographical symbols	Denoting source language etc.
Title	Full title(s) in original language Example: Slovar' po vyčislitel'noj tehnike/ Wörterbuch der Datenverarbeitung/Data processing vocabulary

Name of data element	Explanation and example
Translated title	Full title translated into E May be omitted only if original title is in E
Location	Place where the document is available or where the recorder has seen the document Example: ONv
Price	If given. Example: DM 25,-
Data carrier	Not to be listed in case of printed publications Example: microfiche; magnetic tape
Publisher	Publishing house Example: Brandstetter
Place of publication	Always in the language of the country Example: Wiesbaden
Number of pages	Number of pages of the whole work Example: 134 p.
Number of terms or concepts	Estimated (~), if not given Examples: 4000 c. ~ 300 t. (estimated)
Illustrations	Indicate "i" for a non determined number of illustrations and "fig." for a determined number of illustrations Example: 14 fig.
Symbols	Indicate "s" if document contains signs, letter symbols, etc.
Definitions	Indicate "def." if the terms in the document are defined
Format (size)	A4, A5 or width by height in mm Example: 110x180 mm
Number of volume(s)	Example: 3 vols.

Title of collection of series	Example: Infoterm Series
UDC-notation	Example 681.3
Subject code	Special classification proper to the subject

Annex 4

LIST OF BIBLIOGRAPHICAL DATA ELEMENTS FOR THE INTERNATIONAL BIBLIOGRAPHY OF TERMINOLOGICAL THESES AND DISSERTATIONS (BT 12)

Record identifier: Recording date:

Recorder: Origin[x]:

Personal author

Academic institution
(in full)

Name of supervisor

Title

Translation (E or F)

Language(s) or combinations covered

Year of completion

Pagination

Format

Types of work (please describe, e.g. field work, theoretical work, etc.)

Level of work (e.g. master's thesis, seminar paper 6th term, dissertation, etc.)

Subject field

Subject code (sc)

Description of work (abstract)
- a) Sources used and description thereof
- b) Number of concepts treated
- c) Description of system of concepts
- d) Lexicography
- e) Alphabetical index available
- f) Illustrations, graphs, etc.
- g) Bibliography
- h) Additional comments

Availability and location of work (exact address)

If published: Name and place of publisher; Year of publication

---

[x] University/City/Country

BIBLIOGRAPHICAL SLIPS FOR CARD FILES

BT 1

mn/kg 84 04 06

AKADEMIJA NAUK SSSR. Problematika opredelenij terminov v slovarjah raznyh tipov [The problem of term definition in different types of vocabularies]. Leningrad: Nauka, 1976, 266 p., 140x220.

ONv

BT 3

mn/kg 84 04 06

621.315.2

'de, 'en, 'fr,

RICHLING, C.; DREWITZ, I. Wörterbuch der Kabeltechnik / Dictionary of cable engineering / Dictionnaire de la technique des câbles. Wiesbaden: Brandstetter, 1976, 610 p., 110x180. ISBN 3-87097-072-3.

ONv

BT 4

mn/kg 84 04 06

615.849

de

FREYE, K.; LAMMERS, W. Radiologisches Wörterbuch. Diagnostische Leitsätze für die Praxis [Vocabulary of radiology. Diagnostical guidelines for the practical work]. Berlin/New York: Walter de Gruyter, 1982, 556 p., 140x215. ISBN 3-11-007292-0.

1600 c

ONv

Annex 6

INTERNATIONAL BIBLIOGRAPHY OF STANDARDIZED VOCABULARIES

Input record (Data elements recorded in OCR-B)

```
00  WZ685%41
07  ISO 436%78/3-19831%
10  ISO
14  Plain bearings. Terms, definitions and classification.
    Part 3: Lubrication/Paliersl% lisses. Termes, d£1efinitions
    et classification. Partie 3: Lubrifications/%%Lubrification/
    Pod£7sipniki skol'£7zenija. Terminy, opredelenija i
    klassifikacija. £7Cast' 3: Smazka i smazyvanie/Gleitlager.
    Begriffe, Definitionen und Einteilung. Teil 3: Schmierung
18  Gen£2eve
31%%%
21  ISO4378/3-1983
23  ISO
24  aug. 1983
29  19 p., A4
37  &&&
38  @1k@!2%31D@!30@2k
39  @1k@!31E@!30@2k
42  @1k@!31F@!30@2k
48  @1k@!31R@!30@2k
96  621.822.5
99£a
```

Annex 7

LIST OF DATA FOR THE BIBLIOGRAPHICAL RECORDING OF THESAURI
(Proposal of Infoterm)

Data elements (proposed by Infoterm)
o Mandatory

1 Identification data

o Serial number
o Registration date
o Abbreviation of registering agency
Abbreviation of registrator

2 Bibliographic data

o Author (organization or individual)
o Acronym of organization in parenthesis
o Editors
o Original title
o Translation of title (if other than E)
o Edition
o Place of publication
o Publisher(s)
o Date of publication (month and year, if given)
o Pagination
o ISBN number
o Size (for hard copy only)
o Form of publication (computer printout, microfilm, microfiches, magnetic tape)
Location of copy, if known
Source of information, if secondary information

3 Subject related information (content and layout)

o Subjects covered (UDC)
o Subjects covered (key words)
o Language(s) (use ISO symbols based on ISO 639)
o Source language(s)
o Target language(s)
o Translation(s) only
o Scope notes
o Graphic display (diagrammes)
o Descriptors
Number of descriptors
Generic descriptors
Partitive descriptors
Non-descriptors
Number of non-descriptors
Abstraction level of broader descriptors
Abstraction level of narrower descriptors
Related terms
Number of related terms

4 System related information

Information system
Information network

Annex 8

LIST OF SELECTED ISO STANDARDS AND UNISIST GUIDELINES FOR DOCUMENTATION

1 ISO Standards

(1) Bibliographic references

ISO 690-1975	"Documentation - Bibliographical references - Essential and supplementary elements"
ISO 832-1975	"Documentation - Bibliographical references - Abbreviations of typical words"

(2) Formats

ISO 2709-1981	"Documentation - Format for bibliographic information interchange on magnetic tape"
ISO/DP 6156	"Format for terminological/lexicographical data interchange on magnetic tape (MATER)"
ISO 5428-1980	"Greek alphabet coded character set for bibliographic information interchange"
ISO 5426-1980	"Extension of the Latin alphabet coded character set for bibliographic information interchange"
ISO 7154-1983	"Documentation - Bibliographic filing principles"
ISO 6438-1983	"Documentation - African coded character set for bibliographic information interchange"

(3) Transliteration

ISO/R 9-1968	"International system for the transliteration of Slavic Cyrillic characters"
ISO/R 233-1961	"International systems for the transliteration of Arabic characters"
ISO/R 259-1962	"Transliteration of Hebrew"
ISO/R 843-1968	"International system for the transliteration of Greek characters into Latin characters"
ISO 7098-1982	"Documentation - Romanization of Chinese"

(4) Signs and Symbols

ISO/R 639-1967	"Symbols for languages, countries and authorities"
ISO 3166-1981	"Codes for the representation of names of countries"

(5) Reproduction

ISO 2707-1980	"Micrographics - Transparent A6 size microfiche of uniform division - Image arrangements No. 1 and No. 2"
ISO 2708-1980	"Micrographics - Transparent A6 size microfiche of variable division - Image arrangements A and B"

(6) Factographic data

ISO 2146-1972	"Directories of libraries, information and documentation centres"

2 UNISIST Guidelines

UNESCO. UNISIST guide to standards for information handling. Paris: Unesco 1980, 304 p.

UNESCO/PGI and UNISIST. CCF: The common communication format. Paris: Unesco 1984, 185 p., (PGI-84/WS/4).

DIERICKX, H.; HOPKINSON, A. Reference manual for machine-readable bibliographic descriptions, 2nd rev.ed., Paris: Unesco, 1981, (PGI-81/WS/22)

DIERICKX, H.; HOPKINSON, A. Reference manual for machine-readable descriptions of research projects and institutions. Paris: Unesco, 1982, (PGI-82/WS/10)

GRIFFITH J.M. Application of minicomputers and microcomputers to information handling. Paris: Unesco, 1981, 94 p. (PGI-81/WS/28)

Annex 9

LIST OF THE MOST IMPORTANT TERMINOLOGICAL DATA BANKS WHICH ARE IN OPERATION ALL OVER THE WORLD

Abbreviations used

Language symbols

Af	Africaans
Ar	Arabic
Da	Danish
De	German
En	English
Es	Spanish
Fi	Finnish
Fr	French
Gr	Greek
Is	Icelandic
It	Italian
Nl	Dutch
No	Norwegian
Pt	Portuguese
Ru	Russian
Sv	Swedish

The terminological data banks are classified following the UDC of countries:

UDC

(100) International
===========

World Meteorological Organization/Organisation météorologique mondiale (WMO/OMM)

41, avenue Guiseppe-Motta
P.O. Box: No. 5
Ch-1211 Genève 20
Switzerland
Phone: (022) 34 64 00
Telex: 23260
Telegr.: Meteomond, Genève
Subject(s): hydrology (and related fields)
UDC 556
Language(s): En; Fr; Es; Ru

UDC

(4) Europe
=====

Commission of the European Communities. Bureau of Terminology (CEC)/ Commission des Communautés européennes. Bureau de Terminologie (CCE)

Data bank: EURODICAUTOM
Rue Alcide de Gasperin, Batiment Jean Monnet
P.O. Box 1907
L-1615 Luxembourg
Luxembourg
Phone: 4301-2389
Telex: 3423 or 3446 COMEU LU
Head: Mr. Jacques Goetschalckx
Subjects: all fields
UDC 0/9
Languages: Da De En Fr It Nl envisaged: Es Pt Gr
Cassification: Lenoch classification systems

UDC

(430.1) Federal Republic of Germany

Bundessprachenamt (BSprA)
Data bank: Lexicographical Information System (LEXIS)
Horbeller Straße 52
D-5030 Hürth
FRG
Phone: 02233/55-1
Visiting address: as above
Founded: 1969
Subject: technical fields
UDC 5/7
Language(s): En De Fr It Nl Pt Ru

DIN Deutsches Institut für Normung e.V. (DIN)
Data bank: Terminologie-Datenbank des deutschen Normenwerkes (TERM)
(It is managed by Siemens AG, Sprachendienst München)
P.O. Box 1107
Burggrafenstraße 4-10
D-1000 Berlin 30
FRG
Phone: 030/2601-318 or 2601-1
Telex: 184 273 din d
Telegr.: Deutschnormen Berlin
Responsible: Eva-Maria Baxmann, M.A., Normenausschuß Terminologie im DIN
Subject: all technical fields
UDC 0/9
Language(s): En De Fr and others

Siemens AG, K Sprachendienst
Databank: TEAM (= Terminologie-Erfassungs- und Auswertungs-Methode/
Terminology Evaluation and Acquisition Method)
Hofmannstraße 51
Postfach 700073
D-8000 München 70
FRG
Phone: (089) 84 00 290
Telex: 5 212 461
Telegr.: siemensnachr muenchen
Founded: 1967
Head: Dr. Th. Schneider, Linguistic Projects Manager, Mr. E. Tanke,
Senior Engineer
Subjects: all fields (of science and technology, economics, accounting
etc.)
UDC 0/9
Language(s): Ar De En Es Fr It Nl Pt Ru
Classification: Originally the classification system of the Dokumentationsring der Elektroindustrie was adopted - now under modification

(430.2) German Democratic Republic

Technische Universität Dresden. Institut für Angewandte Sprachwissenschaft
Data bank: Elektronisches Wörterbuch der Fachsprachen (EWF)/
Electronic Dictionary of Specialized Languages
Mommsenstraße 13
8027 Dresden
GDR
Phone: 4636020
Telex: 02278
Subject: chemistry; electrical engineering; electronics; hydraulics;
pneumatics
UDC 54; 66; 621.3; 681.3
Language(s): De En Ru
Classification: Special polyhierarchical classification for special fields

(44) France

Association française de normalisation (AFNOR)

Data bank: NORMATERM (= Normalisation - Automatisation de
la Terminologie)
Tour Europe
Cedex 7
F-92080 Paris la Défense
France
Phone: (1) 778 13 26
Telex: 611 974F
Founded: 1973
Responsible: Mlle Jocelyne Laurent
Subject: all fields
UDC 0/9
Language(s): En Fr
Classification: ISO thesaurus; classification of standards and documents on standardization

(485) Sweden

Tekniska nomenklaturcentralen (TNC)

Data bank: TERMDOK
P.O. Box: 5243
S-102 45 Stockholm
Sweden
Phone: 46-8 24 92 90
Visiting address: Brahegatan 38
Subject: technical fields
UDC 5/7
Language(s): Da De En Es Fi Fr No Ru Sv
Classification: Internal

(47+57) USSR

Vsesojuznyj naučno-issledovatel'skij institut tehničeskoj informacii, klassifikacii i kodirovanija (VNIIKI)

Data bank: Avtomatizirovannaja sistema informacionno-terminologičeskogo obsluživanija / Automatized system for information-terminological service - ASITO

Ul. Ščuseva 4
Moskva K-1
USSR

Head: Mr. V. I. Fedosimov

Subject: standardization of terminology of various fields of science and technology. Elaboration of information retrieval systems for large terminological collections

UDC 0/9

Language(s): De En Fr Ru

Classification: Hierarchic classification conforming to the standards classification

(71) Canada

La Banque de terminologie du Gouverment canadien/Canadian Government Terminology Bank

Data bank: TERMIUM

15 Eddy Street
Ottawa K1A OM5
Canada

Phone: (819)997-1321

Telex: 0533384

Visiting address: 7th Floor, 15 Eddy Street, Hull, Québec, Canada

Founded: 1975

Responsible: Ms. Suzanne Richer, Mr. Michel Cardin

Subjects: all fields

UDC 0/9

Language(s): En Fr

Office de la langue française (OLF) - Direction de la banque de terminologie du Québec (BTQ)
Data bank: Banque de terminologie du Québec
700 boulevard Saint-Cyrille est, 2 e étage
Québec, Québec G1R 5G7
Canada
Phone: (418) 643-1802
Telex: AFINTER QBC 051-3523 OLF
Founded: 1973
Head: M. Jean-Marie Fortin
Subject: all fields
UDC 0/9
Language(s): En Fr
Classification: Thesaurus; UDC

LIST OF TERMINOLOGICAL DATABANKS, WHICH ARE IN DEVELOPMENT

There is a large number of projects of terminological data banks in the world. The terminological data banks are classified following the UDC of countries:

UDC

(100) International

International Bank for Reconstruction and Development (World Bank); Language Services Division/Banque Internationale pour la reconstruction et le développement (Banque Mondiale); Division des services linguistiques/Banco internacional de reconstrucción y fomento (Banco Mondial); Division de los servicios linguisticos

(IBRD/BIRD/BIRF)
1818 H Street, N.W.
Washington, D.C., 20433
USA
Phone: (202) 676 0285
Telegr.: INTBAFRAD
Head: Mr. R.F. Wallatt
Expert: Mr. J. Alvey
Subjects: finance, economics
UDC 330; UDC 336
Language(s): En Es Fr

(436) Austria

Technische Universität Wien (TU)
Data base: Computer-aided technical terminology retrieval system
Karlsplatz 13 Phone: (0222) 5601-3351
A-1040 Wien
Austria Telex: 131000 tufaa
Visiting address: Institut für Gebäudelehre
Technische Universität Wien
Founded: 1979
Head: Dipl.Ing. Arch. Dr. Emmerich Simoncsics
Experts: about 15 collaborators
Subject(s): architecture, mathematics, informatics, engineering
(planned: computer science)
Language(s): En, De, Ja (planned: Hu)

(44) France

Université Clermont II

Banque de données terminologiques (Cézeauterm)
P.B. 45
63170 Aubière, France Phone: (73) 26 41 10
Founded: 1981
Experts: Mr. J. M. Henning, Mr. M. Schneider
Subject: soil mechanics; food preservation
UDC 624.1; 641
Languages: En Fr

(480) Finland

Tekniikan Sanastokeskus /The Finnish Centre for Technical Terminology/ (TSK)
Kotimarsten Kielten tutk; muskus   Phone: 669-529; 179161

(481) Norway

Norsk termbank (NOTE)
Strømgaten 53   Phone: 475-320040/ext. 2952
N-5000 Bergen
Norway
Founded: 1979
Head: Prof. Holbjörn Heggstad
Experts: Mr. Bjarne Narevik; Mr. Havard Hjubstad
Language(s): Da De En Fi Fr Is No Sv

The University of Oslo, Department of English; The Nowegian Ministry of Foreign Affairs
Data bank: Det norske termbankprosjektet /The Norwegian termbank project
P.O. Box 1003   Phone: 456892
Blindern, Oslo 3
Norway
Founded: 1982
Head: Mr. P. Chaffey, University of Oslo; Mr. O. Sandal, Ministry of Foreign Affairs
Subject(s): all fields
UDC 0/9
Language(s): En No

(489) Denmark
=======

The Dansk Terminological Data Bank (DANTERM)
Handelshøjskolen i København
Fabrikvej 7
DK-2000 København,
Denmark
Head: Mr. Gert Engel

(532) Saudi Arabia
============

Science and Technology Terminology Data Base (BASM)
Saudi Arabian National Center for Science and Technology
P.O.Box 6086
Riyadh 11442
Saudi Arabia
Head: M. Mohammed Ali Al-Tasan
Subject: telecommunication
UDC 621.39
Language(s): Ar De En

(87) Venezuela
=========

Banco de datos terminologicos de la Universidad Simón Bolivar (BTUSB)
Universidad Simon Bolivar
P.O.Box 1512
Caracas, 1010 A
Venezuela
Head: Prof. D. Raventos de Castro
Subject(s): technical fields (mainly)
UDC 62
Language(s): En Es Fr

Annex 11

LIST OF FACTOGRAPHIC DATA ELEMENTS - ORGANIZATIONS

001 Reference number
002 Date of record
003 Ref. no(s). of project(s) undertaken
005 Ref. no(s). of commission(s)
006 Ref. no. of data bank

100 Name of organization (original language)
101 Translation into English (if in use)
102 Translation into French (if in use)
103 Translation into other language(s) (if in use)
110 Name of parent organizations (if applicable)
120 Acronym (original)
121 Acronym E (if in use)
122 Acronym F (if in use)
123 Acronym (other languages)
130 Address (country/state)
131 Zip (postal) code (if applicable)
132 City
133 Street/Block
134 P.O.Box
135 Telephone
136 Telex
137 Telegramme address
140 Visiting address (if applicable)
150 Year of foundation/establishment
200 Information about personnel
201 Name and title of director
202 Name of expert (official) responsible for terminology work
210 Total number of staff
211 Number of professional staff
212 Number of general staff
220 Staff categories
    G = terminologist specializing in theory/principles of terminology
    S = terminologist working in a specific field
    D = terminological documentalist/librarian, reference officer
    L = linguist (applied linguistics)
    I = information specialist
    T = translator
    E = specializing in terminological teaching/training
    O = other
300 Collaboration with other organizations
301 worldwide
302 regional (specify)
303 sub-regional (specify)
304 national (specify)
305 List organizations
310 Collaboration within networks
311 List networks

400 Terminological activities
410 Documentation of terminology
A bibliographical data (literature, documentation)
B terminological data (fact documentation)
C both
411 Subject scope (please be as specific as possible)
412 UDC of subject scope
413 Language(s)
414 Terminological holdings
A books (general)
B dictionaries (general)
C specialized vocabularies/glossaries/word lists
D works of reference
E bibliographies
F standards
G journals
H theses, dissertations
I articles
J others
415 Holdings in: A book form ; B microfiche
416 Holdings in computerized form
C Cards ; T Tape ; D Disc
417 Indexing or classification tools used (please specify)
418 General access to holdings
419 Restricted access (please specify)
420 Elaboration of terminologies (lexicographical work)
421 Field(s)
422 UDC of fields(s)
423 Language(s)
430 Work on theory of terminology
433 Language(s)
440 Work on standardization of terminology
441 Field(s)
442 UDC of field(s)
443 Language(s)
450 Teaching of terminology
451 Level: A undergraduate, B graduate, C postgraduate
452 Available to outside users
453 Specifics about course
Course includes: A Fundamentals of terminology
B Terminological principles
C Methods of terminological lexicography
457 Elaboration of teaching material
458 Available teaching material (please specify)
460 Publications issued by your organization (please provide proper bibliographical references)
470 Services provided by your organization
471 Reference services
472 Loan services
473 Reproduction services
474 Translation services
475 Referral services
476 Other (please specify)
477 Charge(s) for services
478 No charge for services
480 User Aids
481 Newsletter
482 Others

500 Type of operation
511 Manual - Please go to 0540
512 Computer assisted,
513 Fully computerized
520 Hardware
521 Make (brand name, eg. IBM)
522 Model (e.g. 370)
523 Memory (e.g. 500Kb)
524 Storage capacity (e.g. 5 Mb)
525 Magnetic tape
526 Other onsite peripherals (e.g. printer, COM-)
527 Terminal connections (please specify)
529 Additional information (please specify)
530 Software
531 Operating system
532 Operation mode(s) (batch; real time; demand)
533 Programming language(s) (e.g.PL1)
534 Data base management system
535 Retrieval documentation system
539 Additional information (please specify)
540 Data base description
541 Name of data base
542 Size of data base
543 Update rate
544 Language(s) of data base
545 Information language (classification system, thesaurus used, eg. UDC, INIS)
546 Other indexing method(s) (please specify)
549 Additional information (please specify)
550 Concept description includes:
551 Definition of concepts
552 Explanation(s) of concepts
553 Indication of systematic representation of concepts (representation of concept relations)
554 Context
555 Standardized terms only
556 Equivalent terms in other languages
557 Other data elements
559 Additional information
560 Services and products
561 Products issued with the aid of the bank, such as glossaries, word lists, etc. (Please provide proper bibliographical refs.)
562 Microforms (please specify)
563 Magnetic tapes, discs (please specify)
564 Current awareness service (SDI)
565 Other services offered (please specify)
566 Charge for services
567 No charge for service
570 Access to data base for outside users
571 Via telephone
572 Via telex
573 Other (please specify)
574 On-line
575 Off-line
580 Availability of data to outside users
581 On exchange basis
582 With charge
583 Free of charge
584 Not available
585 Other

Annex 12

LIST OF FACTOGRAPHIC DATA ELEMENTS - COMMISSIONS/COMMITTEES

001	Reference number
002	Date of record
003	Ref. no(s). of projects undertaken
004	Ref. no. of organization
700	Name of commission (in original language)
701	Translation into E
702	Translation into F
703	Translation into other language(s)
710	Name of parent organization
720	Acronym of commission (original)
721	Acronym E (if in use)
722	Acronym F (if iß use)
723	Acronym (other languages)
750	Year of establishment
800	Information about personnel
801	Name of chairperson
802	Name of vice-chairperson
810	Approximate number of committee (commission) members
830	Address of parent organization (country/state)
831	Zip (postal) code (if applicable)
832	City
833	Street/Block
834	P.O. Box
835	Telephone
836	Telex
837	Telegramme address
840	Visiting address (if applicable)
841	Name and address of person to whom inquiries concerning commission work should be sent (if other than given in 830 - 840)
900	Collaboration with other organizations
901	worldwide
902	regional (please specify)
903	sub-regional (please specify)
904	national (please specify)
905	List organizations
910	Collaboration within networks (please specify)
911	List networks
920	Elaboration of terminologies)lexicographical work
921	Field(s)
922	Language(s)
923	UDC of field(s)
930	Work on theory of terminology
933	Language(s)
940	Work on standardization of terminology
941	Field(s)
942	UDC of field(s)
943	Language(s)
960	Publications issued by your committee/commission on activities described (please provide bibliographical refs.)
961	Charges for such publications
962	Publications without charge

Annex 13

LIST OF FACTOGRAPHIC DATA ELEMENTS - TERMINOLOGICAL DATA BANKS

001 Reference number
002 Date of record
004 Ref. no. of organization

100 Name of organization (original language)
101 Translation into English (if in use)
102 Translation into French (if in use)
103 Translation into other language(s) (if in use)
110 Name of parent organizations (if applicable)
120 Acronym (original)
121 Acronym E (if in use)
122 Acronym F (if in use)
123 Acronym (other languages)
130 Address (country/state)
131 Zip (postal) code (if applicable)
132 City
133 Street/Block
134 P.O.Box
135 Telephone
136 Telex
137 Telegramme address
140 Visiting address (if applicable)
150 Year of foundation/establishment
200 Information about personnel
201 Name and title of director
202 Name of expert (official) responsible for terminology work
210 Total number of staff
211 Number of professional staff
212 Number of general staff
220 Staff categories
    G = terminologist specializing in theory/principles of terminology
    S = terminologist working in a specific field
    D = terminological documentalist/librarian, reference officer
    L = linguist (applied linguistics)
    I = information specialist
    T = translator
    E = specializing in terminological teaching/training
    O = other
300 Collaboration with other organizations
301 worldwide
302 regional (specify)
303 sub-regional (specify)
304 national (specify)
305 List organizations
310 Collaboration within networks
311 List networks
800 Activities
811 Field(s) covered
812 UDC
813 Language(s) covered
814 Purpose of t.d.bank
815 Users (e.g. subject specialists, translators, etc.)

816 Type of operation: A Computer assisted
B Fully computerized
820 Hardware
821 Make (Brand name, e.g. IBM)
822 Model (e.g. 370)
823 Memory (e.g. 500 Kb)
824 Storage capacity (e.g. 5 Mb)
825 Magnetic tape
826 Other onsite peripherals (e.g. printer, COM-)
827 Terminal connections (please specify)
829 Additional information (please specify)
830 Software
831 Operating system
832 Operation mode(s) (batch; real time; demand)
833 Programming language(s) (e.g.PL1)
834 Data base management system
835 Retrieval documentation system
839 Additional information (please specify)
840 Data base description
841 Name of data base
842 Size of data base
843 Update rate
844 Language(s) of data base
845 Information language (classification system, thesaurus used, eg. UDC, INIS)
846 Other indexing method(s) (please specify)
849 Additional information (please specify)
850 Concept description
851 Definition of concepts
852 Explanation(s) of concepts
853 Indication of systematic representation of concepts (representation of concept relations)
854 Context
855 Standardized terms only
856 equivalent terms in other languages
857 other data elements
859 Additional information
860 Services and products
861 Products issued with the aid of the bank, such as glossaries, word lists, etc. (Please provide proper bibliographical refs.)
862 Microforms (please specify)
863 Magnetic tapes, discs (please specify)
864 Current awareness service (SDI)
865 Other services offered (please specify)
866 Charge for services
867 No charge for services
870 Access to data bank for outside users
871 Via telephone
872 Via telex
873 Other (please specify)
874 On-line
875 Off-line
880 Availability of data to outside users
881 On exchange basis
882 With charge
883 Free of charge
884 Not available
885 Other

Annex 14

LIST OF FACTOGRAPHIC DATA ELEMENTS - PROJECTS

- 001 Reference number
- 004 Ref. no. of organization/commission undertaking project

- 601 Name of organization undertaking project
- 602 Name of commission undertaking project
- 610 Title of project (original language)
- 611 Translation of title into E
- 612 Type of project
  - A Institutional project,
  - B Thesis, dissertations, habilitations,
  - C Commissioned project (please provide name of organization commissioning project)
- 613 Status of project
  - A in progress
  - B in planning
- 614 (ad A) projected date of completion
- 615 (ad B) projected dates/or duration
- 616 Number of persons collaborating on project
- 617 Name of director(s) or persons in charge
- 618 Scope of project, i.e. subject field of project (please specify)
- 620 Method of work (please specify)
- 621 Sources used (please specify)
- 622 Available or forthcoming publications (Please provide bibliographical references)
- 623 Unpublished papers available on project (mimeographs, working papers, interim reports, etc.)
- 624 Data available
  - C ... on cards
  - T ... on tape
  - D ... on disc
- 626 Availability of data to outside users
  - A ... on exchange basis
  - B ... no exchange, with charge
  - C ... free of charage
  - D ... not available

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Annex 15

SAMPLE PAGE OF THE INTERNATIONAL BIBLIOGRAPHY OF STANDARDIZED VOCABULARIES (BT 2)

UDC 536

1051 UDC 536.2 662.6
*D *E *F *R *Pl
• PKNiM. *Procesy podstawowe inzynierii chemicznej. Przenoszenie ciepla. Nazwy i określenia* [Procédés fondamentaux de génie chimique. Transmission de chaleur. Termes et définitions]. Warszawa: Wydawnictwa normalizacyjne. apr. 1976. 4 p., A4. (PN-76/C-01350 Arkusz 020 [Feuille 020], jan. 1977. Remplace PN-62/C-01356) ONv

1052 UDC 536.21
s *Cs
• UNM. *Nazvosloví pro tepelně isolační techniku.* [Terminologie relative à la technique de l'isolation thermique]. Praha: Vydavatelství UNM, mar. 1954. fig., A5. (ČSN 01 1805, oct. 1954.) ONv

1053 UDC 536.21
s *E
• BSI. *Glossary of terms relating to thermal insulation*. London: BSI, aug. 1962. 24 p., A5. (B.S. 3533:1962.) WWv

1054 UDC 536.21
s E
• ISI. *Glossary of terms, symbols and units relating to thermal insulation*) ONv *materials*. New Delhi: ISI, dec. 1965, 16 p., A5. (IS: 3069-1965.

1055 UDC 536.21 691
E
• ASTM. *Standard definitions of terms relating to thermal insulating* (ASTM C 168-67, sep. 1967. Originally *materials*. Philadelphia: ASTM, 4 p., C5. American National Standard Z 98.9-1969) In: issued 1941. Replaces C 168-65. 1971 Annual Book of ASTM Standards, Part 14, 'Thermal Insulation; Acoustical Materials; Building Joint Sealants; Fire Tests; Building Constructions', nov., p. 11-14. ONv

1056 UDC 536.24 721
is *Nl *F
• IBN. *Hygrothermique des batiments. Conditions d'hiver / Hygrothermische eigenschappen der gebouwen. Wintervoorwaarden** . Bruxelles: IBN, 53 p., fig., tab., A4. (NBN B62-001, jul. 1972; projet / ontwerp.) P. 6-10: «3. Unités, terminologie et symboles / 3. Eenheden, terminologie en symbolen». ONv

1057 UDC 536.33 535.214 536.532
*E
• BSI. *Guide to the measurement of thermal radiation by means of the thermopile radiometer** . London: BSI, jan. 1973. 25 p., A4. (BS 4892:1973.) P. 4-5. «2. Definitions». ONv

1058 UDC 536.4.092
s *D
• DIN. *Normzustand. Normvolumen*. Berlin: Beuth, 1 p., A4. (DIN 1343, nov. 1975. Frühere Ausgaben: DIN 524, aug. 1922; DIN 1343, aug. 1940, jun. 1955, apr. 1963, mai 1964, dec. 1971) ONv

1059 UDC 536.416 620.193.23 677.072
s *D
• DIN. *Prufung von Textilien. Bestimmung des Schrumpfes von einfachen Garnen und Zwirnen. Begriffe*. Berlin: Beuth, 2 p., A4. (DIN 53 866 Teil 1, Entwurf, nov. 1976.) ONv

UDC 536.5/.6

TEMPERATURE. CALORIMETRY

TEMPERATURE. CALORIMETRIE

TEMPERATUR. KALORIMETRIE

1060 UDC 536.5/.6
*D *E *F *R
• AKADEMIJA NAUK SSSR. KOMITET TEHNIČESKOJ TERMINOLOGII. *Terminologija termometrii i kalorimetrii.* [Terminology of thermometry and calorimetry]. Moskva: Izd-vo AN SSSR, 1936. 40 p., B5. (Bjulleten' komiteta tehničeskoj terminologii, vypusk VIII. [Bulletin of the Commission for Technical Terminology, vol. 8]) Inf.: KulK, p. 67.

1061 UDC 536.5
*Cs
*Sk
• ÚNM. *Názvosloví z oboru měření teplot.* [Nomenclatura relative aux mesures de température]. Praha: Vydavatelství ÚNM, jan. 1974, 15 p., A5. (ČSN 25 8005, jan. 1975.) ONv

1062 UDC 536.5 532.11 66.01/.09
is *D *E *F *I *S
• DIN. *Innen- oder außendruckbeanspruchte Bauteile. Druck- und Temperaturangaben. Begriffe. Nenndruckstufen*. Berlin: Beuth, 6 p., A4. (DIN 2401 Teil 1, mai 1977. Frühere Ausgaben: apr. 1926; jun. 1929; aug. 1936) ONv

1063 UDC 536.5
is *D
• DNA. *Thermometer. Allgemeine Begriffe*. Berlin: Beuth, 4 p., 3 fig., A4. (DIN 16 160 Blatt 1, jan. 1970. Fruhere Ausgabe: dec. 1952) WWv

1064 UDC 536.5
i *D
• AMT FÜR STANDARDISIERUNG. *Meßgeräte. Thermometer. Allgemeine Begriffe*. Leipzig: VEB Fachbuchverlag, 2 p., 3 fig., A4. (TGL 0-16 160 Blatt 1, sep. 1963. Gruppe 364. DDR-Standard) ONv

1065 UDC 536.5
i *D
• AMT FÜR STANDARDISIERUNG. *Meßgeräte. Thermometer. Begriffe für elektrische Thermometer*. Leipzig: VEB Verlag Technik, 8 p., 2 fig., A4. (TGL 0-16 160 Blatt 5, sep. 1960. Gruppe 364. DDR-Standard) WWv

1066 UDC 536.5
*D
• ONA. *Temperaturmessung. Allgemeine Begriffsbestimmung*. Wien: ONA, 1 p., A4. (ONORM M 5800, jan. 1955.) ONv

1067 UDC 536.5
is *E
• BSI. *Code for temperature measurement. Part 5. Radiation pyrometers. 1st revision** . London: BSI, mar. 1972. 62 p., 12 fig., A5. (BS 1041:Part 5:1972. First published: jan. 1943) P. 8-10: «2. Definitions». ONv

1068 UDC 536.5
s E
• ASTM. *Standard definitions of terms relating to temperature measurement*. Philadelphia: ASTM, 4 p., C5. (ASTM E 344-68, feb. 1968.) In: 1971 Annual Book of ASTM Standards, Part 30, «General Test Methods», jul., p. 1071-1074. ONv

1069 UDC 536.5
*D *E *F *R
• GOSUDARSTVENNYJ KOMITET STANDARTOV SOVETA MINISTROV SSSR. *Sredstva izmerenij temperatury. Terminy i opredelenija.* [Temperature measurement means. Terms and definitions]. Moskva: Izdatel'stvo standartov, mai 1976, 9 p., A5. (GOST 13417-76, jul. 1977. Replaces GOST 13417-67)

1070 UDC 536.5 621.316
s *Bg
• MINISTERSTVO NA MAŠINOSTROENE. *Regulatori i ograničiteli temperaturni** [Devices for regulating and limiting temperature]. Sofija: KKSM, nov. 1971, 9 p., A4. (BDS 9094-71, jul. 1972.) P. 1: «Opredelenija» [Definitions]. ONv

1071 UDC 536.51 697.35
*Sh
• JZS. *Toplotna tehnika u visokoj gradnji. Radijacioni termometri. Definicije.* [Thermomètres pour radiations. Définitions]. Beograd: JZS, mai 1973, 1 p., A4. (JUS U.J5.134, aug. 1973.) ONv

1072 UDC 536.51
*D
• DNA. *Thermometer. Begriffe für Stabausdehnungs- und Bimetallthermometer*. Berlin: Beuth, 1 p., A4. (DIN 16 160 Blatt 2, jan. 1970.) WWv

1073 UDC 536.51
i *D
• DNA. *Thermometer. Begriffe für Flussigkeits-Glasthermometer*. Berlin: Beuth, 4 p., fig., A4. (DIN 16 160 Blatt 3, mai 1968. Frühere Ausgabe: sep. 1959) ONv

1074 UDC 536.51
s *Pl
• PKNiM. *Termometry. Nazwy i określenia.* [Thermomètres. Terminologie]. Warszawa: Wydawnictwa normalizacyjne, feb. 1976, 8 p., A4. (PN-76/M-53851, jan. 1977. Remplace PN-59/M-53851 et PN-65/S-13661) ONv

1075 UDC 536.51
i *Pl
• PKN. *Termometry szklane. Terminologia podstawowa.* [Thermomètres em verre. Terminologie]. Warszawa: Wydawnictwa Normalizacyjne, dec. 1965, 2 p., 2 fig., A4. (PN-65/S-13661, jan. 1967. Cette norme remplace PKN/M-53777, 1952) ONv

1076 UDC 536.512/.513
E
• ISI. *Glossary of terms relating to liquid-in-glass thermometers*. New Delhi: ISI, 6 p., A5. (IS 2627-1963.) ONv

1077 UDC 536.513 536.514
i *D
• DNA. *Thermometer. Begriffe für Flüssigkeits- und Dampfdruck-Federthermometer*. Berlin: Beuth, 2 p., fig., A4. (DIN 16 160 Blatt 4, nov. 1968. Fruhere Ausgabe: jun. 1962) WWv

SHORT DESCRIPTION OF INTERNATIONAL BIBLIOGRAPHIES AND DIRECTORIES, WHICH ARE IN PREPARATION WITHIN TERMNET

The following International Bibliographies and Directories (see 6.15) are in preparation:

BT 1 International Bibliography of Terminological Literature

It is the aim within TermNet, Programme 1 to cellect - as a joint effort - the bibliographical data of theoretical literature in terminology to process these data by computer and to record them on a machine-readable data carrier (magnetic tape, disc etc.). Any duplication of effort should be avoided by an efficient organization of the data flow. The bibliography should be disseminated on magnetic data carriers via information systems and networks. It should in addition be published in book form at intervals corresponding to user demand.

Scope

Terminology science, work and research, terminology standardization, organization of terminology work, terminology teaching computer aids in terminology as well as disciplines in relation to terminology such as linguistics, special language, translation, logic, classification, documentation, computer science etc.

BT 2 International Bibliography of Standardized Vocabularies

The aim of this bibliography is to function as a reference tool for all terminology regulations, standards and recommendations which are enforced by governmental bodies, standards organizations, as well as scientific, technical and professional organizations.

The bibliographical data are collected by Infoterm supported by the pertinent organizations. They are recorded in machine-readable form and stored on magnetic tape in order to be offered either to information systems and networks or to publishers for dissemination in book form.

Scope

Any field of human activities.

BT 3 International Bibliography of Multilingual Specialized Vocabularies

The aim of this bibliography is to function as reference tool for multilingual specialized vocabularies.
The bibliographical data of these vocabularies are to be collected through an international co-operation in TermNet. They are to be recorded in machine-readable form and stored on a magnetic data carrier in order to be offered to information systems and networks or to be published in book form.

Scope

The terminlogies of all human activities.

BT 4 International Bibliography of Multilingual Specialized Vocabularies

The aim of this bibliography is to function as reference tool for monolingual specialized vocabularies. See BT 3

Scope

The terminologies of all fields of human activities.

BT 5 World Guide to Terminological Activities

The aim of this Guide is to collect all factographic data concerning the organization of the terminology work (see 6.3) for a better co-ordination of terminological activities.

Scope

Organizations involved in terminology work, terminology commissions, terminology data banks, terminology projects.

BT 6 International Bibliography of Standards and Non Standardized Guidelines for Terminology

see Part 1, Annex 2, p. 75-86

BT 7 International Bibliography of Periodicals Pertaining to Terminology

The aim of this bibliography is to provide a complete listing of all periodicals concerned with terminology and its related subjects, such as linguistics, classification and documentation and information science.

Scope

This bibliography comprises:

(1) all periodicals containing at least 50 % of articles on terminology in every issue (category I)

(2) periodicals marginally concerned with terminology (category II)

BT 8 International Bibliography of Bibliographies and Catalogues Containing Terminological Literature

It is the aim of this bibliography to collect all bibliographical data concerning bibliographies and other listings of terminological literature through an international co-operation and to record them, to process them and to disseminate them by means of a variety of data carriers such as magnetic tapes, books, microfiches etc.

Scope

Terminological publications.

BT 9 International Bibliography of Computer-Assisted Terminology

The aim of this bibliography is to function as special collection of bibliographic data concerning computer-assisted terminology work. It is intended to disseminate the information on the application of the computer in the terminological field.

Scope

Any terminology work with the aid of the computer.

BT 10 International Directory of Terminological Meetings

see Part 1, Annex 3, p. 87-93

BT 11 International Bibliography of Reports and Proceedings of Terminological Meetings

This bibliography is intended to assist the evaluation of the state of the art and the trends in all branches of terminology science and work, which can be gathered from papers presented at meetings. These papers are a sound basis for comparative studies and trend reports.

Scope

Terminology science and work.

BT 12 International Bibliography of Terminological Theses and Dissertations

It is the aim of this bibliography to collect all bibliographical data concerning theses and dissertations from all parts of the world, to record them, to process them and to disseminate them by means of a variety of data carriers such as magnetic tapes, books, microfiches etc. Theses and dissertations dealing with terminology could serve as a basis for terminology work of commissions or bodies recommending or standardizing terminologies. For this reason the existence of such studies is to be kept in evidence by a specific bibliography. This should be accomplished through combined action of all those interested in compiling such a bibliography, in particular universities.

Scope

The terminologies of all fields of human activity.

BT 12 International Directory of Collections of Abbreviations, Initialisms and Acronyms

It is the aim of this bibliography to collect all bibliographical data concerning directories and other listings of abbreviated forms of terms and names. These directories are usually intended to help the readers find the full form of the numerous acronyms, initialisms and abbreviations that are now in use. As a side effect the formation of homonyms and polysems on the level of abbreviation can be kept at a minimum if there are possibilities to trace a certain abbreviation in a directory.

Scope

Abbreviated terms of all fields of human activity.

PART 7

LITERATURE

7 LITERATURE

7.0 BIBLIOGRAPHIES

AAA. Bibliografičeskij ukazatel' izdannyh trudov Komiteta Naučno-tehničeskoj Terminologii AN SSSR /Bibliography of publications edited by the Committee for Scientific and Technical Terminology of the Academy of Sciences of the USSR/. In: Kak rabotat' nad terminologiej osnovy i metody. Moskva: Nauka, 1968, p. 63-75.

BOGUCKAJA, M. F.; LAGUTINA, A. V. Terminovedenie na Ukraine. Bibliografičeskij ukazatel' 1947-1980 /Terminology science and work in the Ukraine. Bibliography 1947-1980/. Kiev: Akademia Nauk ukrainskoj SSR - Komitet Naučno Terminologii, 1982, 105 p.

FELBER, H.; KROMMER-BENZ, M. MANU, A. International Bibliography of standardized vocabularies / Bibliographie internationale de vocabulaires normalisés / Internationale Bibliographie der Normwörterbücher. München/New York/London/Paris: K. G. Saur, 2nd edition, 1979, 540 p., A4 (Infoterm Series 2).

FELBER, H.; NEDOBITY, W. International Bibliography of standards and non-standardized guidelines for terminology (BT 6). Wien: Infoterm, 1984, 12 p. (Infoterm 4-84).

HOFFMANN, L.; LEUBE, K. Kleine Bibliographie fachsprachlicher Untersuchungen /Small bibliography of research in special languages/. In: HOFFMANN, L. Kommunikationsmittel Fachsprache. Eine Einführung. Berlin (DDR): Akademieverlag, 1976 (Sammlung Akademie-Verlag 44), p. 419-493.
continued as:
LEHMANN, M.; LEUBE, K. Kleine Bibliographie fachsprachlicher Untersuchungen. Fachsprache 1 (1979), no. 3, ff.

KROMMER-BENZ, M. International Bibliography of computer-assisted terminology. Paris: Unesco; Wien: Infoterm, 1984, 35 p. (PGI-84/WS/12) (Infoterm 2-84).

VIL'AT, F. O.; RUBINA, L. S. Naučno-tehničeskaja terminologija: Bibliografičeskij ukazatel' literatury z 1976-1978 /Scientific and technical terminology: Bibliography 1976-1978/. Moskva: Akademija Nauk SSSR, Biblioteka po estestvennym naukam. Komitet Naučno-tehničeskoj Terminologii, Biblioteka tehničeskoj literatury, 1978, 83 p.

7.1 TERMINOLOGY WORK AND SCIENCE IN GENERAL

BÜHLER, H.; FELBER, H. TermNet aids translators. Terminologie Bulletin (1982), no. 41, p. 1-11; Mitteilungsblatt für Dolmetscher und Übersetzer 28 (1982), no. 5, p. 8-10.

FELBER, H. Eugen Wüster - a pioneer in terminology. Babel 19 (1973), no. 4, p. 182-185. (Infoterm 8-73)

FELBER, H. Developing international co-operation in terminology and terminological lexicography. In: INFOTERM. First Infoterm symposium. International co-operation in terminology / Premier symposium d'Infoterm. Coopération internationale en terminologie. München: Verlag Dokumentation, 1976 (Infoterm Series 3), p. 281-296.

FELBER, H. Theory of terminology, terminology work and terminology documentation. Interaction and worldwide development. Fachsprache 1 (1979), no. 1-2, p. 20-32.

FELBER, H. The development of terminological activities in the People's Republic of China. A report on an information and consultant mission for Unesco. Wien: Infoterm, 1981, 25 p. (Infoterm 14-81)

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AILA BULLETIN. Stockholm: International Association for applied linguistics, quarterly.

BABEL. Revue de la traduction. Organe officiel de la Fédération internationale des traducteurs. Publié avec le concours de l'Unesco / International journal of translation. Official organ of the International Federation of Translators. Published with the assistance of Unesco. Budapest: Akadémia Kiadó (for FIT), quarterly.

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ČESKOSLOVENSKÝ TERMINOLOGICKÝ ČASOPIS /Czechoslovakian terminology bulletin/. Bratislava: Časopis, Vydavatel'stvo Slovenskej Akadémie Vied, irregular.

COCTA NEWS. Honolulu: Committee on Conceptual and Terminological Analysis in the Social Sciences, 3 issues per year.

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COMMUNICATION AND COGNITION. Ghent: C & C, quarterly.

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NACHRICHTEN FÜR DOKUMENTATION. Schrifttum zu den Dokumentationswissenschaften /Literature pertaining to documentation sciences/. Frankfurt/Main: Dokumentationszentrum für Informationswissenschaft, bi-monthly.

NACHRICHTEN FÜR SPRACHMITTLER. Berlin (GDR): Vereinigung der Sprachmittler der DDR, quarterly.

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